

ASRock IPC Motherboard, Ubiquitous Solutions

2018 / 2H



Reliable
Life Monitoring System



Fun
Slot Machine



Convenient
Kiosk



Retail
POS System



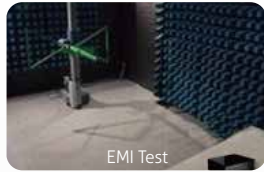
Information
Signage



Security
DVR System



Professional
Industrial Automation
Panel PC



EMI Test



Temperature Humidity Test



Compatibility,
Stability and Reliability Test

ASRock Top Production and Quality Control



Vibration Test



Chamber Test



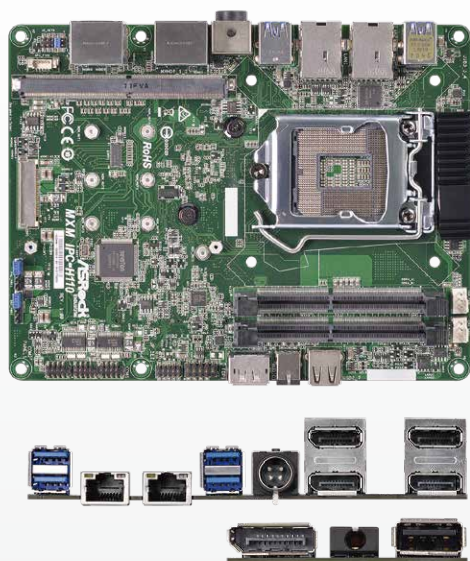
Power Consumption Test

Productivity . Stability . Reliability

When it comes to professional industry PCs, functionality is everything! ASRock's industrial motherboard series will enhance your business with lots of easy-to-use applications. From POS, KIOSK, Gaming Machines, Panel PCs to Surveillance... and so on, getting more from the motherboard has never been easier. Our comprehensive motherboard packages include everything you need for building a successful business.

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MXM IPC-H110

Micro-STX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports MXM Graphics Card (Type-B , Up to 150W)
- Supports DDR4 SO-DIMM 2400, up to 32GB
- 5 x DisplayPort (1 from CPU, 4 from MXM), 1 x eDP (From CPU)
- 4 x USB 3.0, 3 x USB 2.0, 2 x COM
- 2 x M.2 (1 x Key E, 1 x Key M)
- 2 x Intel LAN
- 1 x TPM Header
- DC 19V Input (220W for GTX1060/1070, 270W for GTX1080)

Specifications

Form Factor

Dimensions	Micro-STX (5.8-in x 7.4-in)
------------	-----------------------------

Processor System

CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
Chipset	Intel® H110

Expansion Slot

PCIe	N/A
Mini-PCIe	N/A
MXM slot	1
M.2	1 x M.2 (KEY E, 2230) with PCIe x1 and USB 2.0 for Wireless 1 x M.2 (KEY M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD

Memory

Technology	Dual Channel DDR4 2400 MHz
Max.	32GB
Socket	2 x SO-DIMM

Graphics

Controller	• CPU integrated graphics to support 1 x DP + 1 x eDP (Gen9 Intel Graphics, Support for DirectX 11/12, OpenCL 2.0) • Add on MXM Graphic Card (Type B) to support 4 x DP NVIDIA GeForce GTX 1060/1070/1080
VGA	N/A
LVDS	N/A
eDP	Supports max resolution up to 4K@60Hz
HDMI	N/A
DVI	N/A
DisplayPort	1 x supports max resolution up to 4K@60Hz (CPU integrated graphics) 4 x supports max resolution up to 4K@60Hz (MXM Graphics Card)
Multi Display	Hexa Display

Ethernet

Ethernet	10/100/1000 Mbps
Controller	1 x Intel® I219V + 1 x Intel® I210

Front I/O

USB	1 x USB 2.0
DisplayPort	1
Audio	1 (Mic-In & Line-Out Combo)

Rear I/O

VGA	N/A
DVI	N/A
HDMI	N/A
DisplayPort	1 (CPU integrated graphics)
Ethernet	2
USB	4 x USB 3.0
Audio Jack	N/A
Serial	N/A
PS/2	N/A

Internal Connector

USB	2 x USB 1.1/2.0 (1 x 2.54 pitch header)
LVDS	N/A
eDP	1
VGA	N/A
Serial	2 x COM (RS-232)
SATA	2 x SATA3.0 (6.0 Gb/s)
Parallel	N/A
GPIO	N/A
SATA PWR Output Con	N/A
Speaker Header	N/A
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	19V DC-In Jack (220W for GTX1060/1070, 270W for GTX1080)
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment

Temperature	0°C-50°C w/GTX1060, 0°C-45°C w/GTX1070, 0°C-35°C w/GTX1080
Storage Temperature	-40°C – 85°C



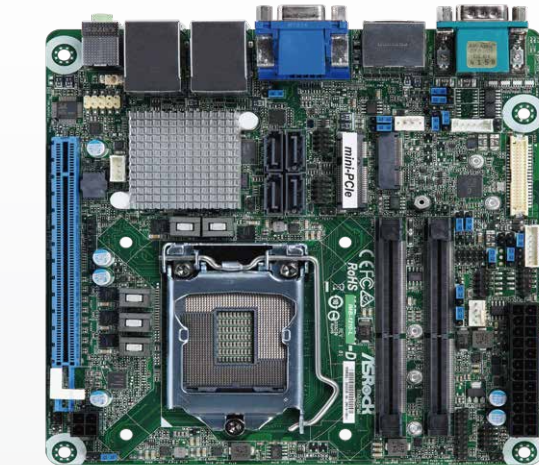
Preliminary

IMB-1210-L / IMB-1210-D

Mini-ITX Motherboard

Spotlight Features

- Socket LGA 1151 for Intel Core i7/i5/i3/Celeron
- Supports Dual Channel DDR4 SO DIMM 2400/2666, up to 32GB
- 2 x Displayport, 1 x VGA, 1 x Dual Channel 24-bit LVDS (IMB-1210-L)
- 3 x Displayport, 1 x eDP (IMB-1210-D)
- 4 x USB 3.0, 4 x USB 2.0, 4 x SATA3, 4 x COM
- 1 x PCIe x16, 1 x Mini-PCIe, 1 x M.2 Key E, 1 x M.2 Key M
- 2 x Intel LAN
- 1 x TPM header
- ATX PWR 24+4-pin



IMB-1210-L



IMB-1210-D

Specifications

Processor System	IMB-1210-L	IMB-1210-D
Dimensions	Mini-ITX (6.7-in x 6.7-in)	
CPU	Socket LGA 1151 for Intel® Core i7/i5/i3/Celeron	
Chipset	Intel® H310	

Expansion Slot		
PCIe	1 x PCIe x16	
Mini-PCIe	1 x Full/Half mini-PCIe with PCIe x1 and USB 2.0	
M.2	1x M.2 (Key E, 2230) with PCIe x1, CNVi and USB2.0 for Wireless 1x M.2 (Key M, 2242/2260/2280) with shared SATA3 for SSD	
mSATA	N/A	

Memory		
Technology	Dual Channel DDR4 2400/2666 MHz	
Max	32 GB	
Socket	2 x SO-DIMM	

Graphics		
Controller	Intel HD Graphics (By CPU)	
VGA	Supports max resolution up to 1920x1200@60Hz	N/A
DVI	N/A	
LVDS	Supports max resolution up to 1920x1200@60Hz	N/A
eDP	N/A	Supports max resolution up to 4096x2304@60Hz
HDMI	N/A	
DisplayPort	Supports max resolution up to 4096x2304@60Hz	
Multi Display	Dual Display	

Ethernet		
Interface	10/100/1000 Mbps	
Controller	1 x Intel I210, 1 x Intel I219V	

Rear I/O	IMB-1210-L	IMB-1210-D
VGA	1	N/A
HDMI	N/A	
DisplayPort	2	3
Ethernet	2	
USB	4 x USB 3.0	
Serial	1 x COM(RS-232/424/485), 1 x COM (RS-232)	
Audio Jack	2 (Mic-in, Line-out)	
PS/2	N/A	

Internal Connector		
USB	4 x USB 2.0	
LVDS	1	N/A
eDP	N/A	1
VGA	N/A	
Serial	2 x COM(RS-232)	
SATA	4 x SATA3 (6.0Gb/s), one is shared with M.2 Key M	
GPIO	4 x GPI, 4 x GPO	
SATA PWR Output Con	N/A	
Speaker Header	1	
TPM	1 x Header	

Watchdog Timer	
Output	From super I/O to drag RESETCON#
Interval	256 Segments, 0,1,2...255 Sec/Min

Power Requirements	
Input PWR	ATX PWR 24+4-pin
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

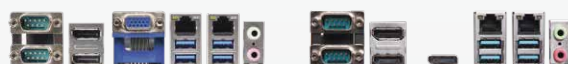
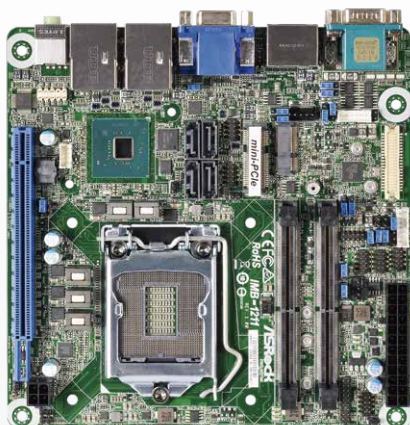
Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

IMB-1211-L / IMB-1211-D

Mini-ITX Motherboard



IMB-1211-L

IMB-1211-D

Spotlight Features

- Socket LGA 1151 for Intel Core i7/i5/i3/Celeron
- Supports Dual Channel DDR4 SO DIMM 2400/2666, up to 32GB
- 2 x Displayport, 1 x VGA, 1 x Dual Channel 24-bit LVDS (IMB-1211-L)
- 3 x Displayport, 1 x eDP (IMB-1211-D)
- 4 x USB 3.1 Gen2, 4 x USB 2.0, 4 x SATA3, 5 x COM
- 1 x PCIe x16, 1 x Mini-PCIe, 1 x M.2 Key E, 1 x M.2 Key M
- 2 x Intel LAN
- 1 x TPM 2.0 IC
- ATX PWR 24+4-pin
- Supports RAID function

Specifications

Processor System	IMB-1211-L	IMB-1211-D
Dimensions	Mini-ITX (6.7-in x 6.7-in)	
CPU	Socket LGA 1151 for Intel® Core i7/i5/i3/Celeron	
Chipset	Intel® Q370	

Expansion Slot		
PCIe	1 x PCIe x16 (Support riser card)	
Mini-PCIe	1 x Full/Half mini-PCIe with PCIe x1 and USB 2.0	
M.2	1x M.2 (Key E, 2230) with PCIe x1, CNVi and USB2.0 for Wireless 1x M.2 (Key M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD	
mSATA	N/A	

Memory		
Technology	Dual Channel DDR4 2400/2666 MHz	
Max	32 GB	
Socket	2 x SO-DIMM	

Graphics		
Controller	Intel HD Graphics (By CPU)	
VGA	Supports max resolution up to 1920x1200@60Hz	N/A
DVI	N/A	
LVDS	Supports max resolution up to 1920x1200@60Hz	N/A
eDP	N/A	Supports max resolution up to 4096x2304@60Hz
HDMI	N/A	
DisplayPort	Supports max resolution up to 4096x2304@60Hz	
Multi Display	Triple Display	

Ethernet	
Interface	10/100/1000 Mbps
Controller	1 x Intel I210, 1 x Intel I219LM

Rear I/O	IMB-1211-L	IMB-1211-D
VGA	1	N/A
HDMI	N/A	
DisplayPort	2	3
Ethernet	2	
USB	4 x USB 3.1 Gen2 (10Gb/s)	
Serial	2x COM(RS-232/424/485)	
Audio Jack	2 (Mic-in, Line-out)	
PS/2	N/A	

Internal Connector		
USB	4 x USB 2.0	
LVDS	1	N/A
eDP	N/A	1
VGA	N/A	
Serial	3 x COM(RS-232)	
SATA	4 x SATA3 (6.0Gb/s)	
GPIO	4 x GPI, 4 x GPO	
SATA PWR Output Con	N/A	
Speaker Header	1	
TPM	1 x Onboard TPM 2.0 IC	

Watchdog Timer	
Output	From super I/O to drag RESETCON#
Interval	256 Segments, 0,1,2...255 Sec/Min

Power Requirements	
Input PWR	ATX PWR 24 + 4-pin
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

IMB-1212/-1213

Mini-ITX Motherboard

Spotlight Features

- Socket LGA 1151 for Intel Core i7/i5/i3/Celeron
- Supports Dual Channel DDR4 SO DIMM 2400/2666, up to 32GB
- 2 x Displayport, 1 x VGA, 1 x eDP, 1 x Dual Channel 24-bit LVDS (IMB-1212)
- 3 x Displayport, 1 x eDP, 1 x Dual Channel 24-bit LVDS (IMB-1213)
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3, 4 x COM (IMB-1212)
- 4 x USB 3.1 Gen2, 4 x USB 2.0, 2 x SATA3, 4 x COM (IMB-1213)
- 1 x PCIe x16, 1 x mini-PCIe, 1 x M.2 Key E, 1 x M.2 Key M
- 2 x Intel LAN
- 1 x TPM Header(IMB-1212)
- 1 x TPM 2.0 IC(IMB-1213)
- 12V/19~28V 4-pin DC-in
- Supports RAID function(IMB-1213)



IMB-1212



IMB-1213

Specifications

Processor System	IMB-1212	IMB-1213
Dimensions	Mini-ITX (6.7-in x 6.7-in)	
CPU	Socket LGA 1151 for Intel Core i7/i5/i3/Celeron	
Chipset	Intel® H310	Intel® Q370

Expansion Slot		
PCIe	1 x PCIe x16	1 x PCIe x16 (Support riser card)
Mini-PCIe	1 x Full/Half mini-PCIe with PCIe x1 and USB 2.0	
M.2	1x M.2 (Key E, 2230) with PCIe x1, CNVI and USB2.0 for Wireless 1x M.2 (Key M, 2242/2260/2280) with SATA3 for SSD	1x M.2 (Key E, 2230) with PCIe x1, CNVI and USB2.0 for Wireless 1x M.2 (Key M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD
mSATA	N/A	

Memory	
Technology	Dual Channel DDR4 2400/2666MHz
Max	32GB
Socket	2 x SO-DIMM

Graphics		
VGA	Supports max resolution up to 1920x1200@60Hz	N/A
DVI	N/A	
LVDS	Dual Channel 24-bit, max resolution up to 1920x1200@60Hz	
eDP	Max resolution up to 4096x2304@60Hz	
HDMI	N/A	
DisplayPort	Max resolution up to 4096x2304@60Hz	
Multi Display	Dual Display	Triple Display

Ethernet		
Interface	10/100/1000 Mbps	
Controller	1 x Intel I210, 1 x Intel I219V	1 x Intel I210, 1 x Intel I219LM

Rear I/O	IMB-1212	IMB-1213
VGA	N/A	
DVI	N/A	
HDMI	N/A	
DisplayPort	2	3
Ethernet	2	
USB	4 x USB 3.0	4 x USB 3.1 Gen2 (10Gb/s)
Serial	N/A	
Audio Jack	2 (Mic-in, Line-out)	
PS/2	N/A	

Internal Connector		
USB	4 x USB2.0	
LVDS	1 (shared with eDP use jumper switch)	
eDP	1	
VGA	1	N/A
Serial	2 x COM (RS-232/422/485), 2 x COM(RS-232)	
SATA	2 x SATA3 (6.0Gb/s)	
GPIO	4 x GPI, 4 x GPO	
SATA PWR Output Con	1	
Speaker Header	1	
TPM	1 x Header	1 x Onboard TPM 2.0 IC

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements	
Input PWR	12V/19~28V 4-pin DC-in
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

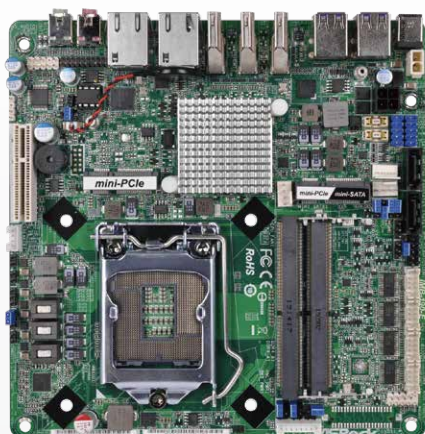
Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

IMB-X190

Mini-ITX Motherboard



Spotlight Features

- Supports the Intel® Xeon® E3-1200 v5 Processor and 7th and 6th Generation Intel® Core™ i3/Pentium®/Celeron® Processors
- Supports Dual Channel DDR4 SO-DIMM 2133, up to 32GB
- Supports ECC DIMM memory modules
- 3 x HDMI, 1 x LVDS
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3, 4 x COM
- 2 x Mini-PCle, 1 x PCIe x4, 1 x mSATA
- 2 x Intel® LAN
- 1 x TPM Header
- 12V / 19~24V DC-in

Specifications

Processor System

Dimensions	Mini-ITX (6.7-in x 6.7-in)
CPU	Supports the Intel® Xeon® E3-1200 v5 Processor and 7 th and 6 th Generation Intel® Core™ i3/Pentium®/Celeron® Processors
Chipset	Intel® C236

Expansion Slot

PCIe	1 x PCIe x4
Mini-PCle	1 x half size with PCIe x1 and USB2.0
M.2	N/A
mini-PCle/ mSATA	1 x full size with PCIe x1, SATA3 and USB2.0

Memory

Technology	Dual Channel DDR4 2133 MHz Supports ECC UDIMM memory modules
Max.	32GB
Socket	2 x SO-DIMM

Graphics

VGA	Supports max resolution up to 1920 x 1200
LVDS	Supports Dual channel 24-bit co-lay with eDP, max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	HDMI1: Supports max resolution 4096 x 2160@60Hz HDMI2 & 3: Supports max resolution 4096 x 2160@30Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel® I210 1 x Intel® I219LM

Rear I/O

VGA	N/A
DVI	N/A
HDMI	3
DisplayPort	N/A
Ethernet	2
USB	4 x USB 3.0
Audio Jack	2 (Mic-in, Line-out)
Serial	N/A
PS/2	N/A

Internal Connector

USB	4 x USB 2.0
LVDS	1
eDP	N/A
VGA	1
Serial	2 x COM (RS-232), 2 x COM (RS-232/422/485)
SATA	2 x SATA3
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V / 19~24V DC-in
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



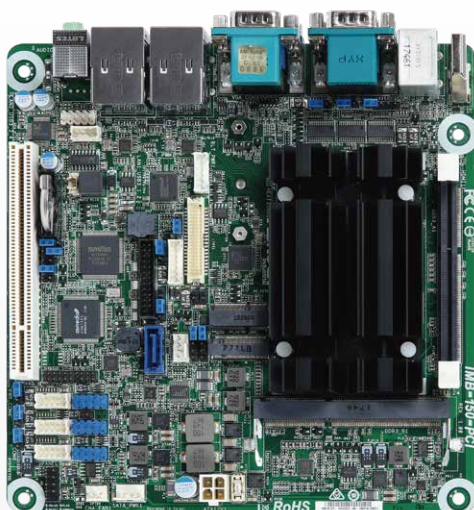
Preliminary

IMB-150-PCI

Mini-ITX Motherboard

Spotlight Features

- Intel® Celeron® Processor J1900/N2930
- Supports Dual Channel DDR3L SO-DIMM 1333, up to 8GB
- 1 x HDMI, 1 x VGA, 1 x LVDS
- 4 x USB 3.0, 6 x USB 2.0, 2 x SATA2
- 1 x PCI, 1 x M.2 Key E, 1 x M.2 Key M
- 2 x Realtek LAN
- 1 x TPM Header
- 9-19V DC-In



Specifications

Processor System

Dimensions	Mini-ITX (6.7-in x 6.7-in)
CPU	Intel® Celeron® Processor J1900/N2930
Chipset	SOC

Expansion Slot

PCI	1
Mini-PCIe	N/A
M.2	1x M.2 (KEY E, 2230) with PCIe x 1 and shared USB2.0 for wireless 1x M.2 (KEY M, 2242/2260/2280) with SATA2 for SSD
mSATA	1 x full size with SATA2 (shared)

Memory

Technology	Dual Channel DDR3 1333 MHz
Max	8GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® Gen7 Intel Graphics DX 11*, OGL3.2
VGA	Supports max resolution up to 1920 x 1200@60Hz
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	Supports max resolution up to 1920x1200@60Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	2 x Realtek RTL8111G-CG

Rear I/O

VGA	1
DVI	N/A
HDMI	1
DisplayPort	N/A
Ethernet	2
USB	4 x USB 3.0
Audio Jack	2 (Mic-in, Line-out)
Serial	3 x COM (RS-232/422/485)
PS/2	2 (1 x keyboard, 1 x mouse)

Internal Connector

USB	6x USB 2.0
LVDS	1
eDP	N/A
VGA	N/A
Serial	2 x COM (RS-232)
SATA	1 x SATA2
Parallel	1
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	9-19V DC-In
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

IMB-158

Mini-ITX Motherboard

Spotlight Features

- BGA1090 for Intel Gemini Lake
- Supports Dual Channel DDR4 SO DIMM 2400, up to 8GB
- 1 x Displayport, 1 x VGA, 1 x Dual Channel 24-bit LVDS (eDP by BOM option)
- 4 x USB 3.0, 4 x USB 2.0, 1 x SATA3, 6 x COM
- 1 x PCIe x1, 1 x mini-PCIe, 1 x M.2 Key E, 1 x M.2 Key M
- 2 x Realtek LAN
- 1 x TPM Header
- 12V/19~28V DC-in (20+4-pin ATX PWR Con.)



Specifications

Processor System

Dimensions	Mini-ITX (6.7-in x 6.7-in)
CPU	BGA1090 for Intel Gemini Lake SoC
Chipset	N/A

Expansion Slot

PCIe	1 x PCIe x1
mini-PCIe	1 x full/half size with PCIe x1 and USB2.0
M.2	1 x M.2 (Key E, 2230) with PCIe x1, CNVI and USB2.0 for Wireless 1 x M.2 (Key M, 2242/2260/2280) with SATA3 for SSD

Memory

Technology	Dual Channel DDR4 2400 MHz
Max	8 GB
Socket	2 x SO-DIMM

Graphics

VGA	Supports max resolution up to 1920x1200
DVI	N/A
LVDS	Dual Channel 24-bit, max resolution up to 1920x1200@60Hz
eDP	Max resolution up to 4096x2160@60Hz(Bom option with LVDS)
HDMI	N/A
DisplayPort	Max resolution up to 4096x2160@60Hz
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	2 x Realtek RTL8111H

Rear I/O

VGA	1
DVI	N/A
HDMI	N/A
DisplayPort	1
Ethernet	2
USB	4 x USB3.0
Audio Jack	2 (Mic-in, Line-out)
Serial	3 x COM (RS-232/422/485)
PS/2	2 (1 x keyboard, 1 x mouse)

Internal Connector

USB	4 x USB2.0 (2 x headers)
LVDS	1
eDP	1 (BOM option with LVDS)
VGA	1 (shared with VGA Con.)
Serial	3 x COM(RS-232)
SATA	1 x SATA3 (6.0Gb/s)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO
SATA PWR Output Con	N/A
Speaker Header	1
TPM	1 x header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V/19V~28V DC-in (20+4-pin ATX PWR Con.)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

IMB-159

Mini-ITX Motherboard



Spotlight Features

- BGA1090 for Intel Gemini Lake
- Supports Dual Channel DDR4 SO DIMM 2400, up to 8GB
- 1 x Displayport, 1 x VGA, 1 x Dual Channel 24-bit LVDS, 1 x eDP
- 4 x USB 3.0, 5 x USB 2.0, 1 x SATA3, 6 x COM
- 1 x PCIe x1, 1 x mini-PCIe, 1 x M.2 Key E, 1 x M.2 Key M
- 2 x Realtek LAN
- 1 x TPM Header
- 12V/19~28V DC-in

Specifications

Processor System

Dimensions	Mini-ITX (6.7-in x 6.7-in)
CPU	BGA1090 for Intel Gemini Lake SoC
Chipset	N/A

Expansion Slot

PCIe	1 x PCIe x1
mini-PCIe	1 x full/half size with PCIe x1 and USB2.0
M.2	1x M.2 (Key E, 2230) with PCIe x1, CNVi and USB2.0 for Wireless 1x M.2 (Key M, 2242/2260/2280) with SATA3 for SSD

Memory

Technology	Dual Channel DDR4 2400 MHz
Max	8 GB
Socket	2 x SO-DIMM

Graphics

VGA	Supports max resolution up to 1920x1200
DVI	N/A
LVDS	Dual Channel 24-bit, max resolution up to 1920x1200@60Hz
eDP	Max resolution up to 4096x2160@60Hz
HDMI	N/A
DisplayPort	Max resolution up to 4096x2160@60Hz
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	2 x Realtek RTL8111H

Rear I/O

VGA	1
DVI	N/A
HDMI	N/A
DisplayPort	1
Ethernet	2
USB	4 x USB3.0
Audio Jack	2 (Mic-in, Line-out)
Serial	N/A
PS/2	N/A

Internal Connector

USB	5 x USB2.0 (2 x headers, 1 x Type A)
LVDS	1 (shared with eDP, auto detect)
eDP	1
VGA	1 (shared with VGA Con.)
Serial	2 x COM (RS-232/422/485), 4 x COM(RS-232)
SATA	1 x SATA3 (6.0Gb/s)
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V/19V~28V DC-in
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

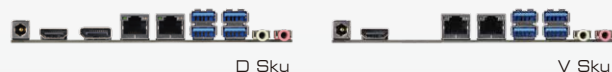
Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-198 / IMB-199

Mini-ITX Motherboard



D Sku

V Sku

Spotlight Features

- Intel® 7th/ 6th Gen (KabyLake-U/Skylake-U) Core™ MCP Processors
 - IMB-198P (i7-6600U)
 - IMB-198M (i5-6300U)
 - IMB-199V (i3-6100U)
- Supports Dual Channel DDR4 SO-DIMM 2133, up to 32GB
- 1 x VGA, 1 x HDMI, 1 x DisplayPort, 1 x eDP, 6 x COM
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3
- 1 x Mini-PCle, 1 x mSATA
- 1 x M.2 (Key E)
- 1 x Intel® LAN, 1 x Realtek LAN
- 1 x TPM Header
- +12V or +19V~+24V DC-In

Specifications

Form Factor	IMB-198	IMB-199
Dimensions	Mini-ITX (6.7-in x 6.7-in)	

Processor System

CPU	Intel® 7 th / 6 th Gen (KabyLake-U/Skylake-U) Core™ MCP Processors	
	- IMB-198P (i7-6600U, DC, 2.40 GHz, 15W) - IMB-198M (i5-6300U, DC, 2.40 GHz, 15W)	- IMB-199V (i3-6100U, DC, 2.30 GHz, 15W)
Chipset	N/A	

Expansion Slot

PCIe	N/A
Mini-PCle	1 x full/half size with PCIe x1 and USB2.0
M.2	1 x M.2 (KEY E, 2230) with PCIe x1 and USB2.0 for Wireless
mSATA	1 x full size with SATA3

Memory

Technology	Dual Channel DDR4 2133MHz
Max.	32GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	Supports max resolution up to 1920 x 1200@60Hz
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	Supports max resolution up to 4096 x 2160@60Hz
HDMI	Supports max resolution up to 4096 x 2160@60Hz
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps	
Controller	1 x Intel® I219LM(vPro) 1 x Realtek RTL8111G	1 x Intel® I219V 1 x Realtek RTL8111G

Rear I/O	IMB-198	IMB-199
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VGA	N/A
DVI	N/A
HDMI	1
DisplayPort	1 (D Sku)
Ethernet	2
USB	4 x USB 3.0
Audio Jack	2 (Mic-in, Line-out)
Serial	N/A
PS/2	N/A

Internal Connector

USB	4 x USB 2.0
LVDS	1
eDP	1
VGA	1 (V Sku)
Serial	2 x COM (RS-232/422/485), 4 x COM(RS-232)
SATA	2 x SATA3(6.0 Gb/s)
Parallel	1
GPIO	8 x GPI + 8 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	+12V or +19V~+24V DC-In
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-195 / IMB-195-D

Mini-ITX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (KabyLake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 SO-DIMM 2133, up to 32GB
- 1 x VGA, 1 x HDMI, 1 x Displayport, 1 x LVDS (IMB-195)
- 1 x HDMI, 2 x Displayport, 1 x eDP (IMB-195-D)
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3, 4 x COM
- 1 x Mini-PCIe, 1 x PCIe x16 Slot, 1 x mSATA
- 2 x Intel® LAN,
- 1 x TPM Header
- ATX PWR Con (24+4-pin)



IMB-195



IMB-195-D

Specifications

Form Factor		IMB-195	IMB-195-D
Dimensions	Mini-ITX (6.7-in x 6.7-in)		
Processor System			
CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™		
	Processors (Socket 1151)		
Chipset	Intel® H110		
Expansion Slot			
PCIe	1 x PCIe x16		
Mini-PCIe	1 x full/half size with PCIe x1 and USB2.0		
M.2	N/A		
mSATA	1 x full size with SATA3 (shared) and USB2.0		
Memory			
Technology	Dual Channel DDR4 2133MHz		
Max.	32GB		
Socket	2 x SO-DIMM		
Graphics			
Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4		
VGA	Supports max resolution up to 1920 x 1200		
LVDS	Supports max resolution up to 1920 x 1200@60Hz		
eDP	Supports max resolution up to 4096 x 2160 @30Hz		
HDMI	Supports max resolution up to 4096 x 2160 @30Hz		
DVI	N/A		
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz		
Multi Display	Dual Display		
Ethernet			
Interface	10/100/1000 Mbps		
Controller	1 x Intel I219V, 1 x Intel I210		

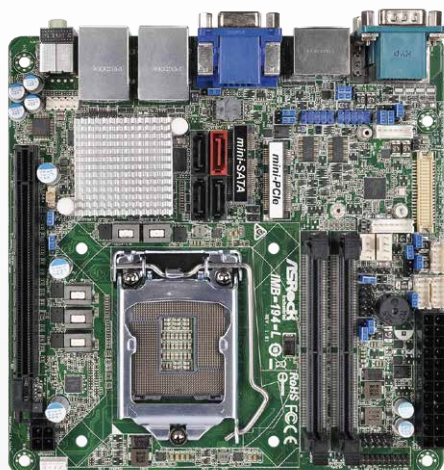
Rear I/O			IMB-195	IMB-195-D
VGA			1	N/A
DVI			N/A	
HDMI			1	
DisplayPort			1	2
Ethernet			2	
USB			4 x USB 3.0	
Audio Jack			2 (Mic-in, Line-out)	
Serial			2 x COM (RS232/422/485)	
PS/2			N/A	

Internal Connector			
USB		4 x USB 2.0	
LVDS		1	N/A
eDP		N/A	1
VGA		N/A	
Serial		2 x COM (RS-232)	1 x COM (RS-232)
SATA		4 x SATA3	
Parallel		N/A	
GPIO		4 x GPI + 4 x GPO	
SATA PWR Output Con		N/A	
Speaker Header		1	
TPM		1 x Header	

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements	
Input PWR	ATX PWR Con (24+4-pin)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment	
Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-194-L

IMB-194-D

IMB-194-L / IMB-194-D

Mini-ITX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 SO-DIMM 2133, up to 32GB
- 1 x VGA, 1 x HDMI, 1 x Displayport, 1 x LVDS (IMB-194-L)
- 1 x HDMI, 2 x Displayport, 1 x eDP (IMB-194-D)
- 4 x USB 3.0, 4 x USB 2.0, 4 x SATA3, 5 x COM
- 1 x Mini-PCle, 1 x PCIe x16 Slot, 1 x mSATA
- 2 x Intel® LAN,
- 1 x TPM 2.0 IC onboard
- ATX PWR Con (24+4-pin)

Specifications

Processor System	IMB-194-L	IMB-194-D
Dimensions	Mini-ITX (6.7-in x 6.7-in)	
CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)	
Chipset	Intel® Q170	

Expansion Slot	
PCIe	1 x PCIe x16
Mini-PCle	1 x full/half size with PCIe x1 and USB2.0
M.2	N/A
mSATA	1 x full size with SATA3 (shared) and USB2.0

Memory	
Technology	Dual Channel DDR4 2133MHz
Max	32GB
Socket	2 x SO-DIMM

Graphics	
Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	Supports max resolution up to 1920 x 1200
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	Supports max resolution up to 4096 x 2160 @60Hz
HDMI	Supports max resolution up to 4096 x 2160 @24Hz
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Triple Display

Ethernet	
Interface	10/100/1000 Mbps
Controller	1 x Intel I219LM, 1 x Intel I210

Rear I/O	IMB-194-L	IMB-194-D
VGA	1	N/A
DVI	N/A	
HDMI	1	
DisplayPort	1	2
Ethernet	2	
USB	4 x USB 3.0	
Audio	2 (Mic-in, Line-out)	
Serial	2 x COM (RS232/422/485)	
PS/2	N/A	

Internal Connector		
USB	4 x USB 2.0	
LVDS	1	N/A
eDP	N/A	1
VGA	N/A	
Serial	3 x COM (RS-232)	
SATA	4 x SATA3	
Parallel	N/A	
GPIO	4 x GPI + 4 x GPO	
SATA PWR Output Con	N/A	
Speaker Header	1	
TPM	1 x IC onboard	

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

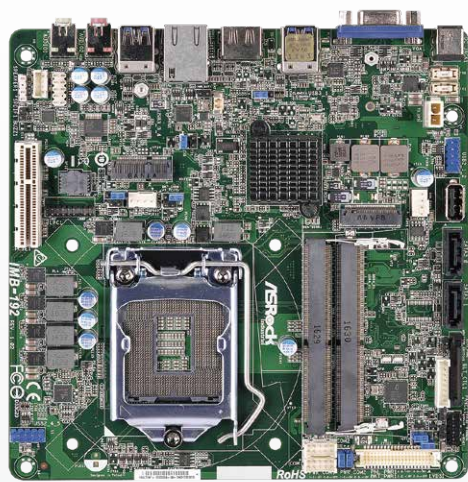
Power Requirements	
Input PWR	ATX PWR Con (24+4-pin)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-192

Mini-ITX Motherboard



Spotlight Features

- Supports Intel® 7th/ 6th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 SO-DIMM 2133, up to 32GB
- 1 x VGA, 1 x HDMI, 1 x LVDS
- 4 x USB 3.0, 5 x USB 2.0, 2 x SATA3, 2 x COM
- 1 x M.2 (Key E) , 1 M.2 (Key M)
- 1 x PCIe x4
- 1 x Intel® LAN
- 1 x TPM Header
- DC 19V power input

Specifications

Processor System

Dimensions	Mini-ITX (6.7-in x 6.7-in)
CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
Chipset	Intel® H110

Expansion Slot

PCIe	1 x PCIe x4
Mini-PCIe	N/A
M.2	1 x M.2 (Key E, 2230) with PCIe x1 and USB2.0 for Wireless 1 x M.2 (Key M, 2242/2260) with SATA3 for SSD
mSATA	N/A

Memory

Technology	Dual Channel DDR4 2133MHz
Max	32GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® HD Graphics 510/530
VGA	Supports max resolution up to 1920 x 1200 @ 60Hz
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	Supports max resolution up to 4096 x 2160 @60Hz
HDMI	Supports max resolution up to 4K x 2K (4096x2160) @ 24Hz / (3840x2160) @ 30Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel I219V

Rear I/O

VGA	1
DVI	N/A
HDMI	1
DisplayPort	N/A
Ethernet	1
USB	4 x USB 3.0
Audio Jack	2 (Mic-in, Line-out)
Serial	N/A
PS/2	N/A

Internal Connector

USB	5 x USB 2.0 (2 x Header, 1 x Type A)
LVDS	1
eDP	N/A
VGA	N/A
Serial	2 x COM (RS-232)
SATA	2 x SATA3
Parallel	N/A
GPIO	N/A
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

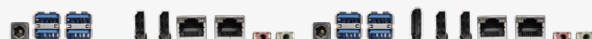
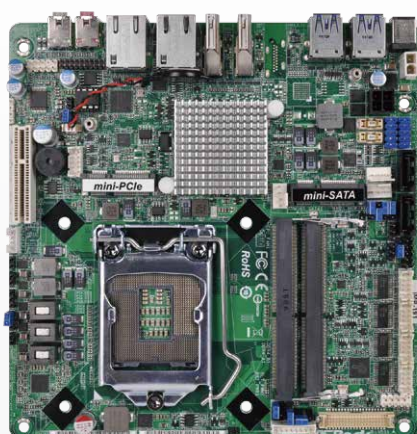
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	19V phone jack DC-In
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-191

IMB-193

IMB-191 / IMB-193

Mini-ITX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (KabyLake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 SO-DIMM 2133, up to 32GB
- 2 x HDMI, 1 x LVDS (IMB-191)
- 2 x HDMI, 1 x DisplayPort, 1 x eDP (IMB-193)
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3, 4 x COM
- 1 x Mini-PCle, 1 x PCIe x4 Slot, 1 x mSATA
- 2 x Intel® LAN (IMB-191)
- 1 x Intel LAN, 1 x Realtek LAN (IMB-193)
- 1 x TPM Header
- 12V / 19~24V DC-in (IMB-191)
- 19V DC-in (IMB-193)

Specifications

Processor System		IMB-191	IMB-193
Dimensions		Mini-ITX (6.7-in x 6.7-in)	
CPU		Supports Intel® 7 th / 6 th Gen (KabyLake-S/Skylake-S) Core™ Processors (Socket 1151)	
Chipset		Intel® H110	

Expansion Slot	
PCIe	1 x PCIe x4
Mini-PCle	1 x half size (Supports PCIe x1 & USB device)
M.2	N/A
mSATA	1 x full size (shared SATA and USB device)

Memory	
Technology	Dual Channel DDR4 2133MHz
Max	32GB
Socket	2 x SO-DIMM

Graphics		
Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4	
VGA	Supports max resolution up to 1920 x 1200	N/A
LVDS	Supports Dual channel 24-bit co-lay with eDP, max resolution up to 1920 x 1200@60Hz	N/A
eDP	N/A	Supports Max. resolution 4096 x 2160@60Hz
HDMI	Supports max resolution up to 4096 x 2160 @30Hz	
DVI	N/A	
DisplayPort	N/A	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Dual Display	

Ethernet		
Interface	10/100/1000 Mbps	
Controller	1 x Intel® I210 1 x Intel® I219V	1 x Intel® I219v 1 x Realtek RTL8111G

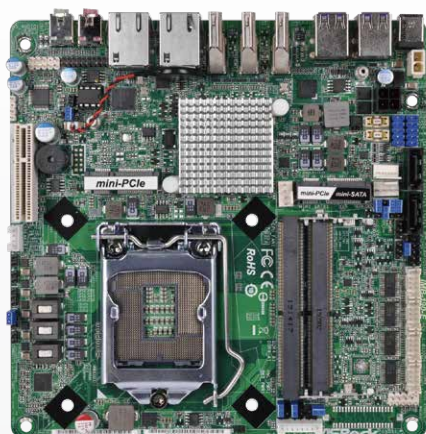
Rear I/O			IMB-191	IMB-193
VGA			N/A	
DVI			N/A	
HDMI			2	
DisplayPort			N/A	1
Ethernet			2	
USB			4 x USB 3.0	
Audio Jack			2 (Mic-in, Line-out)	
Serial			N/A	
PS/2			N/A	

Internal Connector		
USB	4 x USB 2.0	
LVDS	1	N/A
eDP	N/A	1
VGA	1	N/A
Serial	2 x COM (RS-232, 2 x RS-232/422/485)	3 x COM (RS-232), 1 x COM (RS-232/422/485)
SATA	2 x SATA3	
Parallel	N/A	
GPIO	4 x GPI + 4 x GPO	
SATA PWR Output Con	1	
Speaker Header	1	
TPM	1 x Header	

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements		
Input PWR	12V / 19~24V DC-in (DC Jack / 4-pin ATX PWR Con)	19V DC-in (DC Jack / 4-pin ATX PWR Con)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready	

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-190 / IMB-190-E

Mini-ITX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 SO-DIMM 2133, up to 32GB
- 3 x HDMI, 1 x LVDS (IMB-190)
- 3 x HDMI, 1 x eDP (IMB-190-E)
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3, 4 x COM
- 2 x Mini-PCle, 1 x PCIe x4, 1 x mSATA
- 2 x Intel® LAN
- 1 x TPM Header
- 12V / 19~24V DC-in

Specifications

Processor System	IMB-190	IMB-190-E
Dimensions	Mini-ITX (6.7-in x 6.7-in)	
CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)	
Chipset	Intel® Q170	

Expansion Slot	
PCIe	1 x PCIe x4
Mini-PCle	1 x half size with PCIe x1 and USB2.0
M.2	N/A
mini-PCle/ mSATA	1 x full size with PCIe x1, SATA3 and USB2.0

Memory	
Technology	Dual Channel DDR4 2133 MHz
Max.	32GB
Socket	2 x SO-DIMM

Graphics	
Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	Supports max resolution up to 1920 x 1200
LVDS	Supports Dual channel 24-bit co-lay with eDP, max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	HDMI1: Supports max resolution 4096 x 2160@60Hz HDMI2 & 3: Supports max resolution 4096 x 2160@30Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Triple Display

Ethernet	
Interface	10/100/1000 Mbps
Controller	1 x Intel® I210 1 x Intel® I219LM

Rear I/O	IMB-190	IMB-190-E
VGA	N/A	
DVI	N/A	
HDMI	3	
DisplayPort	N/A	
Ethernet	2	
USB	4 x USB 3.0	
Audio Jack	2 (Mic-in, Line-out)	
Serial	N/A	
PS/2	N/A	

Internal Connector		
USB	4 x USB 2.0	
LVDS	1	N/A
eDP	N/A	1
VGA	1	N/A
Serial	2 x COM (RS-232), 2 x COM (RS-232/422/485)	
SATA	2 x SATA3	
Parallel	N/A	
GPIO	4 x GPI + 4 x GPO	
SATA PWR Output Con	1	
Speaker Header	1	
TPM	1 x Header	

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements	
Input PWR	12V / 19~24V DC-in
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-157

Mini-ITX Motherboard



Spotlight Features

- Intel® Apollo Lake/ Apollo Lake-I SoC Processor
 - IMB-157D (N4200)
 - IMB-157L (N3350)
 - IMB-E157M (E3940)
- Supports Dual Channel DDR3L SO-DIMM 1867, up to 8GB
- 1 x VGA, 1 x HDMI, 1 x eDP or LVDS (Jumper Switch)
- 4 x USB 3.0, 4 x USB 2.0, 1 x SATA3, 6 x COM
- 1 x Mini-PCle, 1 x PCIe x1, 1 x M.2 (KEY E), 1 x M.2 (KEY M)
- 2 x Realtek LAN
- 1 x TPM Header
- +12V or +19V~+24V DC-In

Specifications

Processor System

Dimensions	Mini-ITX (6.7-in x 6.7-in)
CPU	Intel® Apollo Lake/ Apollo Lake-I SoC Processor -IMB-157D (N4200, QC, 1.10 GHz, 6 W) -IMB-157L (N3350, DC, 1.10 GHz, 6 W) -IMB-E157M (E3940, QC, 1.60 GHz, 9.5 W)
Chipset	SOC

Expansion Slot

PCIe	1 x PCIe x1
Mini-PCle	1 x full/half size with PCIe x1 and shared USB2.0
M.2	1 x M.2 (KEY E, 2230) with PCIe x1 and shared USB2.0 for Wireless 1 x M.2 (KEY M, 2242/2260) with SATA3 for SSD
mSATA	N/A

Memory

Technology	Dual Channel DDR3L 1867MHz
Max	8GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® HD Graphics
VGA	Supports max resolution up to 1920 x 1200
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	Supports max resolution up to 4096 x 2160@60Hz
HDMI	Supports max resolution up to 4096 x 2160@24Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	2 x Realtek RTL8111G

Rear I/O

VGA	1
DVI	N/A
HDMI	1
DisplayPort	N/A
Ethernet	2
USB	4 x USB 3.0
Audio Jack	2 (Mic-in, Line-out)
Serial	N/A
PS/2	N/A

Internal Connector

USB	4 x USB 2.0
LVDS	1
eDP	1
VGA	1
Serial	4 x COM (RS-232), 2 x COM (RS-232/422/485)
SATA	1 x SATA3
Parallel	1 (shared with GPIO)
GPIO	8 x GPI + 8 x GPO (shared with LPT header)
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

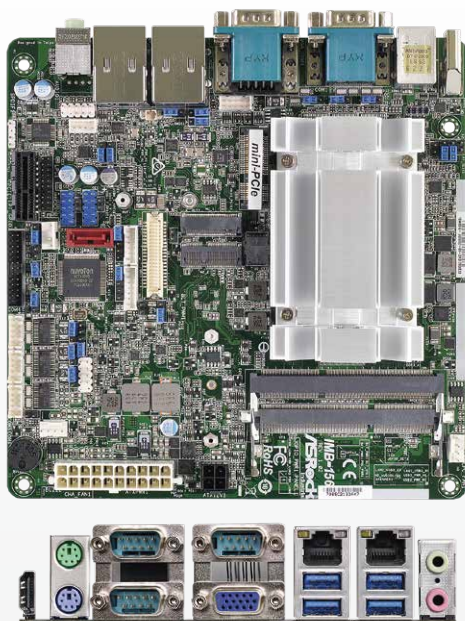
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	+12V or +19V~+24V DC-In
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-156

Mini-ITX Motherboard

Spotlight Features

- Intel® Apollo Lake/ Apollo Lake-I SoC Processor
 - IMB-156D (N4200)
 - IMB-156L (N3350)
 - IMB-E156M (E3940)
- Supports Dual Channel DDR3L SO-DIMM 1867, up to 8GB
- 1 x VGA, 1 x HDMI, 1 x LVDS (eDP by BOM option)
- 4 x USB 3.0, 4 x USB 2.0, 1 x SATA3, 6 x COM
- 1 x Mini-PCIe, 1 x PCIe x1, 1 x M.2 (KEY E), 1 x M.2 (KEY M)
- 2 x Realtek LAN
- 1 x TPM Header
- +12V or +19V~+24V DC-In (4-pin ATX PWR Con / ATX)

Specifications

Processor System

Dimensions	Mini-ITX (6.7-in x 6.7-in)
CPU	Intel® Apollo Lake/ Apollo Lake-I SoC Processor -IMB-156D (N4200, QC, 1.10 GHz, 6 W) -IMB-156L (N3350, DC, 1.10 GHz, 6 W) -IMB-E156M (E3940, QC, 1.60 GHz, 9.5 W)
Chipset	SOC

Expansion Slot

PCIe	1 x PCIe x1
Mini-PCIe	1 x full/half size with PCIe x1 and shared USB2.0
M.2	1 x M.2 (KEY E, 2230) with PCIe x1 and shared USB2.0 for Wireless 1 x M.2 (KEY M, 2242/2260) with SATA3 for SSD
mSATA	N/A

Memory

Technology	Dual Channel DDR3L 1867MHz
Max	8GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® HD Graphics
VGA	Supports max resolution up to 1920 x 1200
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	Supports max resolution up to 4096 x 2160@60Hz
HDMI	Supports max resolution up to 4096 x 2160@24Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	2 x Realtek RTL8111G

Rear I/O

VGA	1
DVI	N/A
HDMI	1
DisplayPort	N/A
Ethernet	2
USB	4 x USB 3.0
Audio Jack	2 (Mic-in, Line-out)
Serial	3 x COM (RS-232/422/485)
PS/2	2 (1 x keyboard, 1 x mouse)

Internal Connector

USB	4 x USB 2.0
LVDS	1
eDP	1 (BOM Option)
VGA	1
Serial	3 x COM (RS-232)
SATA	1 x SATA3
Parallel	1 (shared with GPIO)
GPIO	8 x GPI + 8 x GPO (shared with LPT header)
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

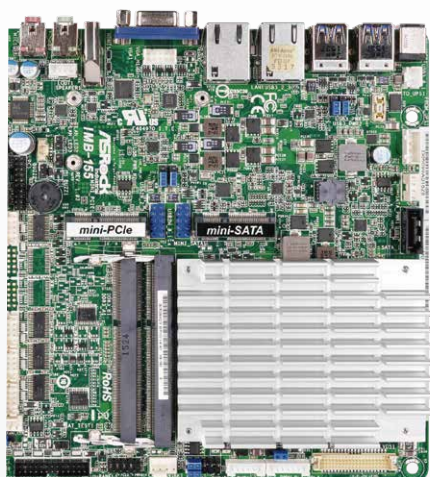
Input PWR	+12V or +19V~+24V DC-In (4-pin ATX PWR Con / ATX)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C

IMB-155

Mini-ITX Motherboard

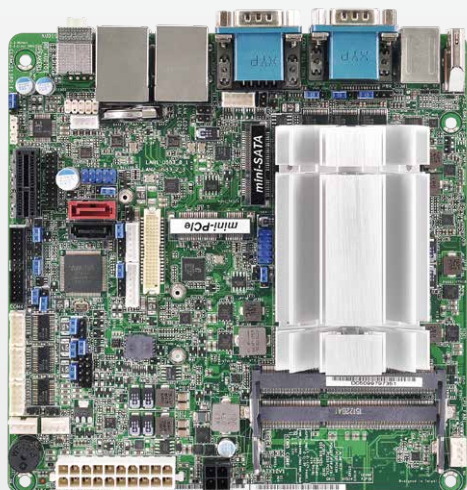


- Intel® Braswell SoC Processor
 - IMB-155A (N3710)
 - IMB-155B (N3160)
- Supports Dual Channel DDR3L SO-DIMM 1333/1600, up to 8GB
- 1 x HDMI, 1 x D-Sub, 1 x Dual Channel 24-bit LVDS/eDP
- 4 x USB 3.0, 4 x USB 2.0, 1 x SATA3, 6 x COM
- 1 x Mini-PCle, 1 x PCIe x1, 1 x mSATA
- 2 x Realtek LAN
- 1 x TPM Header
- +12V or +19V~+24V DC-In (4-pin ATX PWR Con)



IMB-154

Mini-ITX Motherboard

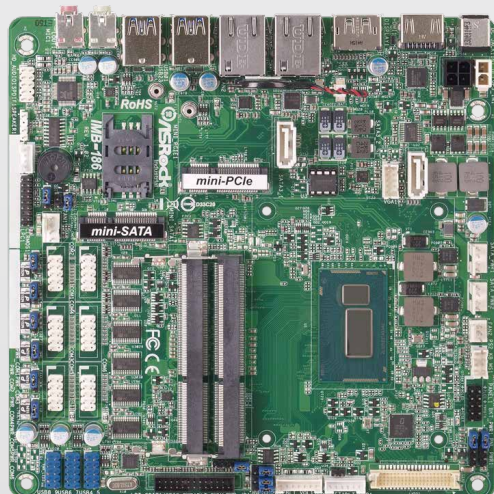


- Intel® Braswell SoC Processor
 - IMB-154A (N3710)
 - IMB-154B (N3160)
- Supports Dual Channel DDR3L SO-DIMM 1333/1600, up to 8GB
- 1 x HDMI, 1 x D-Sub, 1 x Dual Channel 24-bit LVDS/eDP
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3, 6 x COM
- 1 x Mini-PCle, 1 x PCIe x1, 1 x mSATA (shared)
- 2 x Realtek LAN
- 1 x TPM Header
- +12V or +19V~+24V DC-In (4-pin ATX PWR Con/ ATX)



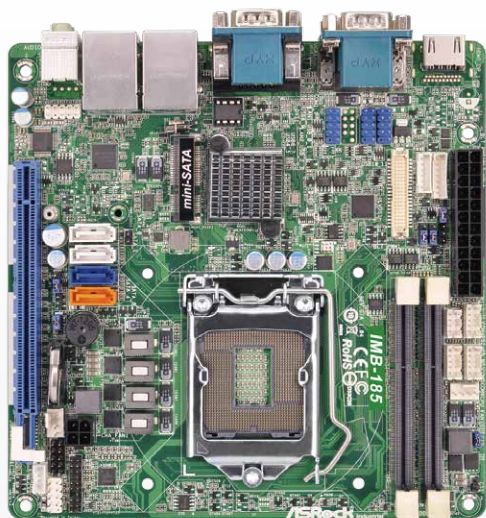
IMB-186

Ultra Thin Mini-ITX Motherboard



- Intel® 4th Gen (Haswell-U) Core™ MCP Processors
 - IMB-186P (i7-4650U, QC, 1.70 GHz, 15 W)
 - IMB-186M (i5-4300U, DC, 1.90 GHz, 15 W)
 - IMB-186V (i3-4010U, DC, 1.70 GHz, 15 W)
- Supports Dual Channel DDR3L SO-DIMM 1333/1600, up to 16GB
- 1 x HDMI, 1 x DisplayPort, 1 x LVDS
- 4 x USB 3.0, 6 x USB 2.0, 2 x SATA3, 6 x COM
- 1 x Mini-PCle, 1 x mSATA
- 1 x RTL8111G x 1, 1 x Intel® I218LM (Intel® Core i7/i5)
- 1 x RTL8111G x 1, 1 x Intel® I218V (Intel® Core i3)
- 1 x TPM Header
- DC 9-19 input

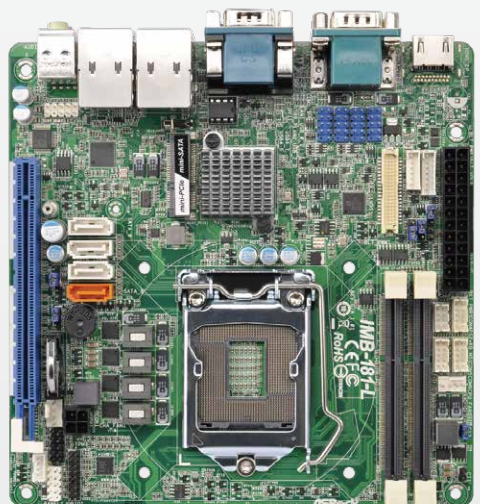




- Supports Intel® 5th/ 4th Gen (Broadwell-S/Haswell-S) Core™ Processors (Socket 1150)
- Supports Dual Channel DDR3 SO-DIMM 1333/1600, up to 16GB
- 1 x HDMI, 1 x VGA, 1 x LVDS
- 2 x USB 3.0, 8 x USB 2.0, 2 x SATA3, 2 x SATA2, 6 x COM
- 1 x PCIe x16, 1 x mSATA
- 2 x Intel® LAN
- 1 x TPM Header
- ATX PWR (4 + 24)

IMB-181-L / IMB-181-D

Mini-ITX Motherboard



IMB-181-L



IMB-181-D

- Supports Intel® 5th/ 4th Gen (Broadwell-S/Haswell-S) Core™ Processors (Socket 1150)
- Supports Dual Channel DDR3 SO-DIMM 1600, up to 16GB
- 1 x HDMI, 1 x VGA, 1 x LVDS (IMB-181-L)
- 1 x HDMI, 1 x DVI, 1 x Displayport (IMB-181-D)
- 4 x USB 3.0, 8 x USB 2.0, 4 x SATA3
- 1 x Mini-PCle, 1 x PCIe x16, 1 x mSATA
- 2 x Intel® LAN
- 1 x TPM Header
- ATX PWR (4 + 24)



IMB-181-L



IMB-181-D



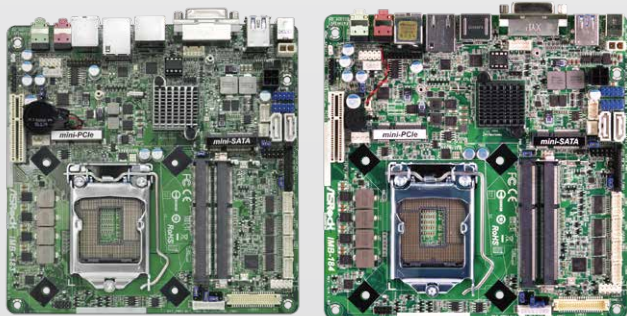
IMB-183



IMB-184

IMB-183 / IMB-184

Mini-ITX Motherboard

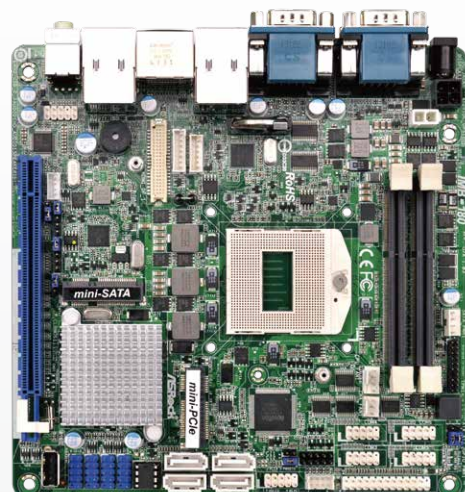


IMB-183

IMB-184



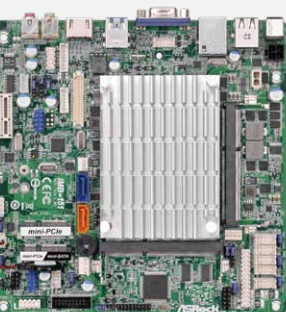
- Supports Intel® 5th/ 4th Gen (Broadwell-S/Haswell-S) Core™ Processors (Socket 1150)
- Supports Dual Channel DDR3 SO-DIMM 1600, up to 16GB
- 1 x HDMI, 1 x DVI, 1 x LVDS
- 2 x USB 3.0, 6 x USB 2.0, 2 x SATA3
- 1 x Mini-PCle, 1 x PCIe x4, 1 x mSATA
- 1 x Intel® LAN
- 1 x TPM Header
- DC 12-19 input



IMB-180

Mini-ITX Motherboard

- Supports Intel® 5th/ 4th Gen (Broadwell-S/Haswell-S) Core™ Processors (Socket 1150)
- Intel® QM87 Chipset
- Supports DDR3 SO-DIMM 1600, up to 16GB
- 6 x COM
- 1 x VGA, 1 x HDMI, 2 x DisplayPort, 1 x LVDS
- 4 x USB 3.0, 8 x USB 2.0, 4 x SATA3
- 1 x mini-PCIe, 1 x mSATA, 1 x PCIe x16
- 2 x Intel LAN
- 1 x TPM Header



IMB-151D-WF



IMB-151N

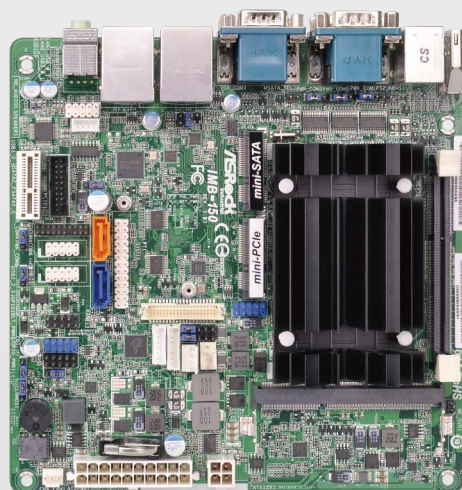


IMB-151

Mini-ITX Motherboard

- Intel® Baytrail SoC Processor
 - IMB-151D (J1900)
 - IMB-151D-WF (J1900)
 - IMB-151N (N2930)
- Supports Dual Channel DDR3 SO-DIMM 1600, up to 16GB
- 1 x HDMI, 1 x VGA, 1 x LVDS
- 4 x USB 3.0, 8 x USB 2.0, 4 x SATA2
- 1 x Mini-PCIe, 1 x PCIe x1, 1 x mSATA
- 1 x Realtek LAN
- 1 x TPM Header
- 9~19 V DC-in

Mini-ITX



IMB-150

Mini-ITX Motherboard

- Intel® Baytrail SoC Processor
 - IMB-150D (J1900)
 - IMB-150N (N2930)
- Supports Dual Channel DDR3L SO-DIMM 1333, up to 8GB
- 1 x HDMI, 1 x VGA, 1 x LVDS
- 4 x USB 3.0, 6 x USB 2.0, 2 x SATA2
- 1 x Mini-PCIe, 1 x PCIe x1, 1 x mSATA
- 2 x Realtek LAN
- 1 x TPM Header
- 9-19V DC-In (4-pin ATX PWR Con)



IMB-A180

Mini-ITX Motherboard

- AMD Embedded G-Series SOC processor
 - IMB-A180P-E (GX-420CA, QC, 25W, 2.0GHz)
 - IMB-A180M-E (GX-415GA, QC, 15W, 1.5GHz)
- Supports DDR3 So-DIMM 1600MHz
- 1 x VGA, 1 x HDMI, 1 x LVDS (A180)
- 6 x COM, 6 x USB 2.0, 2 x USB 3.0
- 1 x PCIe4, 1x SATA3, 1 x mSATA
- 1 x Realtek RTL8111E, 1 x Realtek RTL8111DP
- 1 x TPM header



IMB-A182P

Mini-ITX Motherboard

- AMD Embedded G-Series GX-424CC SOC processor
- Support DDR3 1866 MHz
- 1 x HDMI, 1 x VGA, 1 x LVDS
- 2 x USB 3.0, 6 x USB 2.0, 1 x SATA3, 6 x COM
- 1 x Mini-PCle, 1 x PCIe x4, 1 x mSATA
- 2 x Realtek LAN
- 1 x TPM Header
- 12V DC-In (4-pin ATX PWR Con)/20-pin ATX PWR con



IMB-171-L



IMB-171-D



IMB-171-L

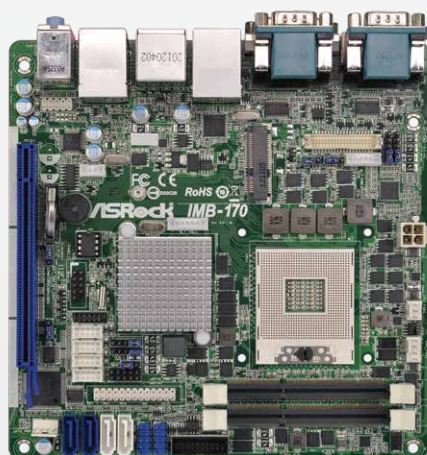


IMB-171-D

IMB-171-L / IMB-171-D

Mini-ITX Motherboard

- Supports Intel® 3rd/ 2nd Gen (Ivy Bridge and Sandy Bridge) Core™ Processors (Socket 1155)
- Intel® Q77 Chipset
- Supports DDR3 SO-DIMM 1600, up to 16GB
- 6 x COM
- 1 x VGA, 1 x HDMI, 1 x LVDS (IMB-171-L)
- 1 x VGA, 1 x HDMI, 1 x DisplayPort (IMB-171-D)
- 4 x USB 3.0, 6 x USB 2.0, 2 x SATA3, 2 x SATA2
- 1 x PCIe x16, 1 x mini-PCIe
- 2 x Intel LAN
- 1 x TPM Header



IMB-170



IMB-170

IMB-170

Mini-ITX Motherboard

- Supports Intel® 3rd/ 2nd Gen (Ivy Bridge and Sandy Bridge) Core™ Processors (Socket 1155)
- Intel® QM77 Chipset
- Supports DDR3 SO-DIMM 1600, up to 16GB
- 6 x COM
- 1 x DVI-I, 1 x HDMI, 1 x DisplayPort, 1 x LVDS
- 4 x USB 3.0, 8 x USB 2.0, 2 x SATA3, 2 x SATA2
- 1 x PCIe 2.0 x16, 1 x mini-PCIe
- 2 x Intel LAN

Mini-ITX



IMB-161-L



IMB-161-D



IMB-161-L



IMB-161-D

IMB-161-L / IMB-161-D

Mini-ITX Motherboard

- Supports Intel® 3rd/ 2nd Gen (Ivy Bridge and Sandy Bridge) Core™ Processors (Socket 1155)
- Intel® H61 Chipset
- Supports DDR3 SO-DIMM 1600, up to 16GB
- 6 x COM
- 1 x VGA, 1 x HDMI, 1 x LVDS (IMB-161-L)
- 1 x DVI, 1 x HDMI, 1 x DisplayPort (IMB-161-D)
- 8 x USB 2.0, 4 x SATA2
- 1 x PCIe x16, 1 x mini-PCIe
- 2 x Intel LAN
- 1 x TPM Header



SBC-330/SBC-331

3.5" SBC Motherboard



Spotlight Features

- Intel® 7th/ 6th Gen (KabyLake-U/Skylake-U) Core™ MCP Processors
 - SBC-330P (i7-6600U)
 - SBC-330M (i5-6300U)
 - SBC-331V (i3-6100U)
- Supports DDR4 SO-DIMM 2133, up to 32GB
- 2 x DisplayPort
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3
- 1 x mini-PCle
- 2 x Intel LAN
- DC 12-36V power input

Specifications

Processor System	SBC-330	SBC-331
Dimensions	3.5" SBC (5.8-in x 4.0-in)	
CPU	-SBC-330P (i7-6600U, QC, 2.60 GHz, 15 W) -SBC-330M (i5-6300U, QC, 2.40 GHz, 15 W)	-SBC-331V (i3-6100U, QC, 2.30 GHz, 15 W)
Chipset	SOC	

Expansion Slot

PCIe	N/A
Mini-PCle	1xhalf/full with PCIe1 and USB 2.0
M.2	N/A
mSATA/Mini PCIe	1xfull size with SATA3 and USB 2.0

Memory

Technology	Dual Channel DDR4 2133MHz
Max.	32GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® Gen9 Intel Graphics DX 11/12, OGL4.3/4.4
VGA	N/A
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	N/A
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps	
Controller	1 x Intel® I219-LM, 1 x Intel® I211AT	1 x Intel® I219-V, 1 x Intel® I211AT

Rear I/O	SBC-330	SBC-331
VGA	N/A	
DVI	N/A	
HDMI	N/A	
DisplayPort	2	
Ethernet	2	
USB	4 x USB 3.0	
Audio Jack	N/A	
Serial	N/A	
PS/2	N/A	

Internal Connector

USB	4 x USB 2.0
LVDS	1
eDP	N/A
VGA	N/A
Serial	3 x COM (RS-232), 1 x COM (RS-232/422/485)
SATA	2 x SATA3
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	N/A
TPM	N/A

Watchdog Timer

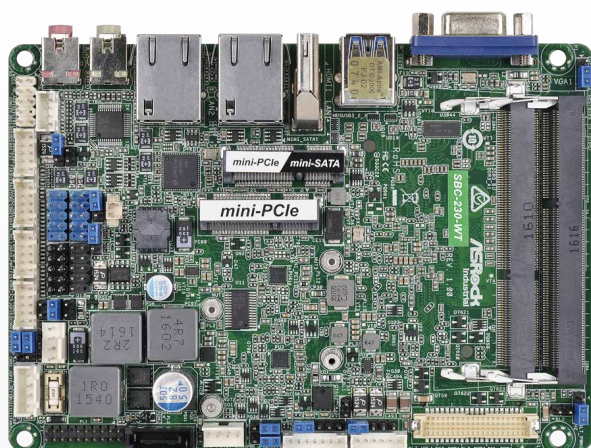
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12 / 19-36V phone jack DC-In
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



SBC-230 / SBC-230-WT

3.5" SBC Motherboard

Spotlight Features

- BGA1296 for Intel® Apollo Lake /Apollo Lake-I SoC
- SBC-230D (N4200)
- SBC-230L (N3350)
- SBC-E230M (E3940)
- SBC-E230M-WT (E3940)
- Supports Dual Channel DDR3L SO-DIMM 1867, up to 16GB
- 1 x VGA, 1 x HDMI, 1 x LVDS or eDP (Jumper Switch)
- 2 x USB 3.0, 4 x USB 2.0, 1 x SATA3, 4 x COM
- 1 x Mini-PCle, 1 x Mini-PCle / mSATA Colay
- 2 x Intel LAN
- 1 x TPM Header
- 9V~36V DC-in (4-pin PWR Con)

Specifications

Processor System	SBC-230	SBC-230-WT
Dimensions	3.5" SBC (5.8-in x 4.0-in)	
CPU	- SBC-230D (N4200, QC, 1.10 GHz, 6W) - SBC-230L (N3350, DC, 1.10 GHz, 6W) - SBC-E230M (E3940, QC, 1.60 GHz, 9.5W)	- SBC-E230M (E3940, QC, 1.60 GHz, 9.5W)
Chipset	SOC	

Expansion Slot

PCIe	N/A
Mini-PCle	1 x full/ half size(Supports PCIe x1 & USB device) 1 x full size(colay with mSATA)
M.2	N/A
mSATA	1 x Full Size(colay with Mini-PCle)

Memory

Technology	Dual Channel DDR3L 1867MHz
Max	16GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics 4K Codec Decode& Encode
VGA	Supports max resolution up to 1920 x 1200
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	Supports max resolution up to 4096 x 2160@60Hz
HDMI	Supports max resolution up to 4096 x 2160@24Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	2 x Intel® I210

Rear I/O	SBC-230	SBC-230-WT
VGA	1	
DVI	N/A	
HDMI	1	
DisplayPort	N/A	
Ethernet	2	
USB	2 x USB 3.0	
Audio	2 (Mic-in, Line-out)	
Serial	N/A	
PS/2	N/A	

Internal Connector

USB	4 x USB 2.0
LVDS	1
eDP	1
VGA	N/A
Serial	3 x COM (RS-232), 1 x COM (RS-232/422/485)
SATA	1 x SATA3
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	9V~36V DC-in (4-pin PWR Con)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C	-20°C – 75°C
Storage Temperature	-40°C – 85°C	



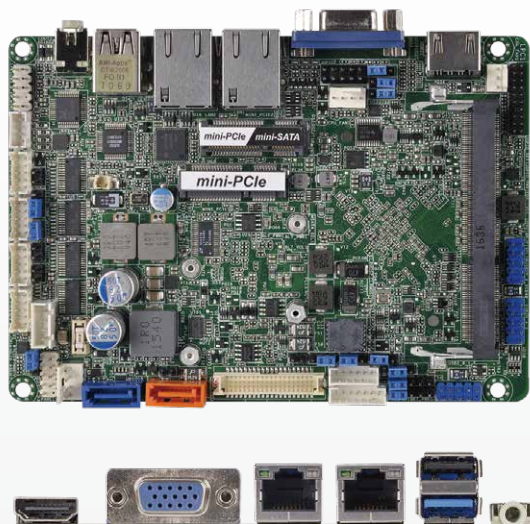
Preliminary

SBC-212-WT

3.5" SBC Motherboard

Spotlight Features

- Intel® Baytrail-I E3845 SoC Processor
- Supports Single Channel DDR3L SO-DIMM 1333MHz, up to 8GB
- 4 x COM
- 1 x HDMI, 1 x D-Sub, 1 x LVDS
- 2 x USB 3.0, 6 x USB 2.0, 2 x SATA2
- 1 x mini-PCle, 1x mSATA (shared)
- 2 x Intel LAN
- 1 x TPM Header
- 9~36 V DC-in



Specifications

Processor System

Dimensions	3.5" SBC (5.8-in x 4.0-in)
CPU	E3845, QC, 1.91GHz, 10W
Chipset	SOC

Expansion Slot

PCIe	N/A
Mini PCIe	1 x half size with PCIe x1 and USB 2.0
M.2	N/A
mSATA/Mini PCIe	1xfull size with PCIe1 , SATA2 and USB 2.0

Memory

Technology	Single Channel DDR3L 1333 MHz SDRAM
Max.	8GB
Socket	1 x SO-DIMM

Graphics

Controller	Intel® Gen7 Intel® Graphics DX 11, OGL3.2
VGA	Supports max resolution up to 1920 x 1200
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	Supports max resolution up to 1920 x 1200
DVI	N/A
DisplayPort	N/A
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	2 x Intel I210IT

Rear I/O

VGA	1
DVI	N/A
HDMI	1
DisplayPort	N/A
Ethernet	2
USB	1 x USB 3.0, 1 x USB 2.0
Audio	1 (Line-out)
Serial	N/A
PS/2	N/A

Internal Connector

USB	6 x USB 2.0
LVDS	1
eDP	N/A
VGA	N/A
Serial	3 x COM (RS-232), 1 x COM (RS-232/422/485)
SATA	2 x SATA2
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Header

Watchdog Timer

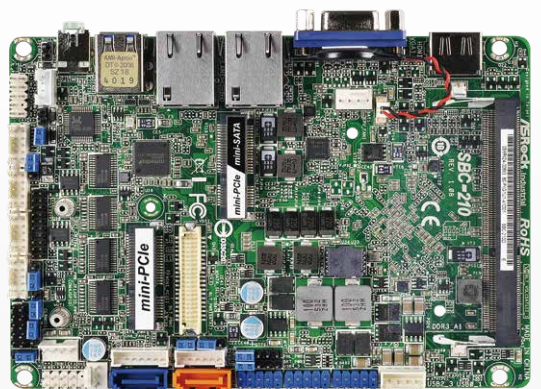
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	9-36V DC-In using 4-pin ATX PWR Con
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	-20°C – 75°C
Storage Temperature	-40°C – 85°C



SBC-210/ SBC-211

3.5" SBC Motherboard

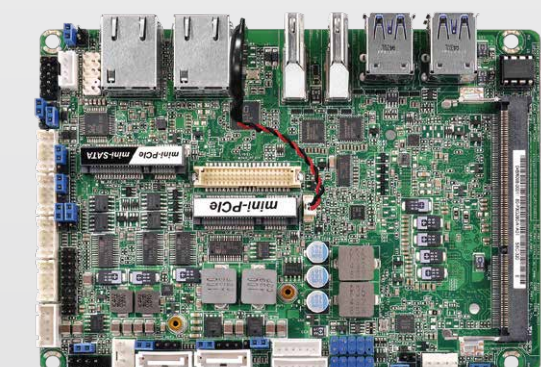


- Intel® Baytrail /Baytrail-I SoC Processor
 - SBC-210D (J1900)
 - SBC-210N (N2930)
 - SBC-210L (N2807)
 - SBC-211P (E3845)
 - SBC-211M (E3826)
- Supports Single Channel DDR3L SO-DIMM 1333, up to 8GB
- 4 x COM
- 1 x HDMI, 1 x D-Sub, 1 x LVDS
- 2 x USB 3.0, 6 x USB 2.0, 2 x SATA2
- 1 x mini-PCle, 1x mSATA (shared)
- 2 x Realtek Lan
- 1 x TPM Header
- 9~36 V DC-in



- Intel® Braswell SoC Processor
 - SBC-220A (N3710)
 - SBC-220B (N3160)
- Supports Single Channel DDR3L SO-DIMM 1333/1600MHz, up to 8GB
- 1 x HDMI, 1 x D-Sub, 1 x LVDS/eDP
- 2 x USB 3.0, 2 x USB 2.0, 1 x SATA3
- 1 x mini-PCle, 1 x mSATA
- 2 x Intel® Lan
- 1 x TPM Header
- 12~24 V DC-in

SBC



SBC-310 / SBC-311

3.5" SBC Motherboard

- Intel® 4th Gen (Haswell-U) Core™ MCP Processors
 - SBC-310P (i7-4650U)
 - SBC-310M (i5-4300U)
 - SBC-311V (i3-4010U)
- Supports DDR3L SO-DIMM 1333/1600, up to 8GB
- 2 x HDMI, 1 x LVDS co-lay with eDP
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3
- 1 x mini-PCle, 1x mSATA,
- 1 x Realtek LAN, 1 x Intel LAN
- 1 x TPM Header



Preliminary

IMB-1311-L / IMB-1311-D

Micro ATX Motherboard

Spotlight Features

- Socket LGA 1151 for Intel Core i7/i5/i3/Celeron
- Supports Dual Channel DDR4 4x Long-DIMM 2400/2666, up to 64GB
- 1 x VGA, 1 x DVI, 1 x HDMI, 1 x Displayport
1 x Dual Channel 24-bit LVDS (IMB-1311-L)
- 1 x DVI, 1 x HDMI, 1 x Displayport, 1 x eDP (IMB-1311-D)
- 6 x USB 3.1 Gen2, 6 x USB 2.0, 6 x SATA3, 6 x COM
- 1 x PCIe x 16, 1 x PCIe x4, 2 x PCI, 1 x mini-PCIe
1 x M.2 Key E, 1 x M.2 Key M
- 2 x Intel LAN
- 1 x TPM 2.0 IC
- ATX PWR 24+8-pin
- Supports RAID function



IMB-1311-L

IMB-1311-D

Specifications

Processor System	IMB-1311-L	IMB-1311-D
Dimensions	Micro ATX (9.6-in x 9.6-in)	
CPU	Socket LGA 1151 for Intel® Core i7/i5/i3/Celeron	
Chipset	Intel® Q370	

Expansion Slot		
PCIe	1 x PCIe x16 (Support riser card), 1 x PCIe x4	
PCI	2	
Mini-PCIe	1 x Full/Half mini-PCIe with PCIe x1 and USB 2.0	
M.2	1x M.2 (Key E, 2230) with PCIe x1, CNVI and USB 2.0 for Wireless 1x M.2 (Key M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD	
mSATA	N/A	

Memory		
Technology	Dual Channel DDR4 2400/2666 MHz	
Max	64 GB	
Socket	4 x Long-DIMM	

Graphics		
VGA	Supports max resolution up to 1920x1200@60Hz	N/A
LVDS	Supports max resolution up to 1920x1200@60Hz	N/A
eDP	N/A	Supports max resolution up to 4096x2304@60Hz
HDMI	Supports max resolution up to 4096x2160@24Hz	
DVI	Supports max resolution up to 1920x1200@60Hz	
DisplayPort	Supports max resolution up to 4096x2304@60Hz	
Multi Display	Triple Display	

Ethernet	
Interface	10/100/1000 Mbps
Controller	1 x Intel I210, 1 x Intel I219LM

Rear I/O	IMB-1311-L	IMB-1311-D
VGA	1	N/A
DVI	1	
HDMI	1	
DisplayPort	1	
Ethernet	2	
USB	4 x USB3.1 Gen2 (10Gb/s)	
Serial	1 x COM (RS-232/422/485)	
Audio Jack	3 (Mic-in. Line-in. Line-out)	
PS/2	1 x PS/2 combo	

Internal Connector		
USB	2 x USB 3.1 Gen2 (10Gb/s), 6 x USB 2.0	
LVDS	1	N/A
eDP	N/A	1
VGA	1	N/A
Serial	5 x COM(RS-232)	
SATA	6 x SATA3 (6.0Gb/s), one is shared with M.2 Key M	
Parallel	1 (shared with GPIO)	
GPIO	8 x GPI, 8 x GPO	
SATA PWR Output Con	N/A	
Speaker Header	1	
TPM	1 x Onboard TPM 2.0 IC	

Watchdog Timer	
Output	From super I/O to drag RESETCON#
Interval	256 Segments, 0,1,2...255 Sec/Min

Power Requirements	
Input PWR	ATX PWR 24+8-pin
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

IMB-1310

Micro ATX Motherboard

Spotlight Features

- Socket LGA 1151 for Intel Core i7/i5/i3/Celeron
- Supports Dual Channel DDR4 2 x Long-DIMM 2400/2666, up to 32GB
- 1 x VGA, 1 x DVI, 1 x HDMI, 1 x Displayport, 1 x Dual Channel 24-bit LVDS
- 4 x USB 3.0, 4 x USB 2.0, 4 x SATA3, 4 x COM
- 1 x PCIe x 16, 1 x PCIe x4, 2 x PCI, 1 x M.2 Key M
- 2 x Intel LAN
- 1 x TPM header
- ATX PWR 24+8-pin



Specifications

Processor System

Dimensions	Micro ATX (9.6-in x 9.6-in)
CPU	Socket LGA 1151 for Intel Core i7/i5/i3/Celeron
Chipset	Intel® H310

Expansion Slot

PCIe	1 x PCIe x16, 1 x PCIe x4
PCI	2
Mini-PCIe	N/A
M.2	1x M.2 (Key M, 2242/2260/2280) with SATA3 for SSD
mSATA	N/A

Memory

Technology	Dual Channel DDR4 2400/2666MHz
Max	32GB
Socket	2 x Long-DIMM

Graphics

VGA	Supports max resolution up to 1920x1200@60Hz
LVDS	Dual Channel 24-bit, max resolution up to 1920x1200@60Hz
eDP	N/A
HDMI	Max resolution up to 4096x2160@24Hz
DVI	Max resolution up to 1920x1200@60Hz
DisplayPort	Max resolution up to 4096x2304@60Hz
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel I210, 1 x Intel I219V

Rear I/O

VGA	1
DVI	1
HDMI	1
DisplayPort	1
Ethernet	2
USB	4 x USB3.0
Serial	1 x COM (RS-232/422/485)
Audio Jack	3 (Mic-in, Line-in, Line-out)
PS/2	1 x PS/2 combo

Internal Connector

USB	4 x USB2.0
LVDS	1
eDP	N/A
VGA	1
Serial	3 x COM(RS-232)
SATA	4x SATA3 (6.0Gb/s), one is shared with M.2 Key M
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO
SATA PWR Output Con	N/A
Speaker Header	1
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	ATX PWR 24+8-pin
Power On	AT/ATX Supported AT: Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-391

Micro ATX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (KabyLake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 2133MHz, up to 32GB
- 1 x VGA, 2 x HDMI, 1 x Displayport, 1 x DVI
- 4 x USB 3.0, 4 x USB 2.0, 4 x SATA3
- 1 x PCIe x16, 2 x PCI, 1 x PCIe x4
- 2 x Intel LAN
- 1 x TPM Header
- ATX PWR Con (24+8-pin)

Specifications

Processor System

Dimensions	Micro ATX (9.6-in x 9.6-in)
CPU	Supports Intel® 7 th / 6 th Gen (KabyLake-S/Skylake-S) Core™ Processors
Chipset	Intel® H110

Expansion Slot

PCIe	1 x PCIe x16, 2 x PCI, 1 x PCIe x4
Mini-PCIe	N/A
M.2	N/A
mSATA	N/A

Memory

Technology	Dual Channel DDR4 2133MHz
Max	32GB
Socket	2 x Long-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	Supports max resolution up to 1920 x 1200
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	Supports max resolution up to 4096 x 2160@60Hz
DVI	Supports max resolution up to 1920 x 1200@60Hz
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel I219V, 1 x Intel I210

Rear I/O

VGA	1
DVI	1
HDMI	1
DisplayPort	1
Ethernet	2
USB	4 x USB 3.0
Audio Jack	3 (Mic-in, Line-in, Line-out)
Serial	1 x COM (RS-232/422/485)
PS/2	1 x PS/2 combo

Internal Connector

USB	4 x USB 2.0
LVDS	1
eDP	N/A
VGA	N/A
Serial	3 x COM (RS-232)
SATA	4 x SATA3
Parallel	1 (shared with GPIO)
GPIO	8 x GPI + 8 x GPO
SATA PWR Output Con	N/A
Speaker Header	1
TPM	1 x Header

Watchdog Timer

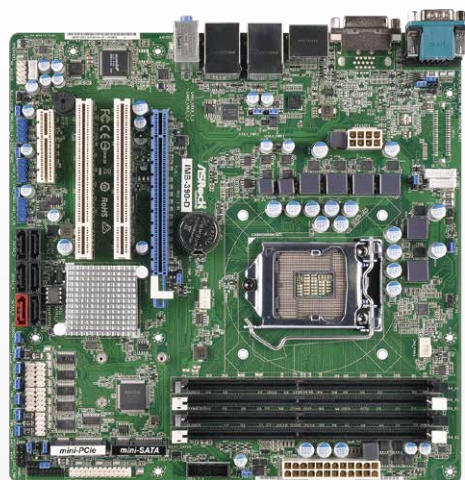
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	ATX PWR Con (24+8-pin)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-390-L



IMB-390-D

IMB-390-L / IMB-390-D

Micro ATX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 2133MHz, up to 64GB
- 1 x VGA, 1 x HDMI, 1 x Displayport, 1 x DVI (IMB-390-L)
1 x HDMI, 1 x Displayport, 1 x DVI (IMB-390-D)
- 6 x USB 3.0, 6 x USB 2.0, 6 x SATA3
- 1 x Mini-PCle, 1 x PCIe x16, 2 x PCI, 1 x PCIe x4,
- 1 x mSATA
- 2 x Intel LAN
- 1 x TPM IC onboard
- ATX PWR Con (24+8-pin)

Specifications

Processor System	IMB-390-L	IMB-390-D
Dimensions	Micro ATX (9.6-in x 9.6-in)	
CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ Processors	
Chipset	Intel® Q170	

Expansion Slot		
PCIe	1 x PCIe x16, 2 x PCI, 1 x PCIe x4	
Mini-PCIe	1 x half/full size (supports PCIe x1 and USB device)	
M.2	N/A	
mSATA	1 x full size (supports SATA and USB device)	

Memory		
Technology	Dual Channel DDR4 2133	
Max	64GB	
Socket	4 x Long-DIMM	

Graphics		
Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4	
VGA	Supports max resolution up to 1920 x 1200	N/A
LVDS	Supports max resolution up to 1920 x 1200@60Hz	N/A
eDP	Supports max resolution up to 4096 x 2160@60Hz	
HDMI	Supports max resolution up to 4096 x 2160@60Hz	
DVI	Supports max resolution up to 1920 x 1200@60Hz	
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz	
Multi Display	Triple Display	

Ethernet		
Interface	10/100/1000 Mbps	
Controller	1 x Intel I219LM, 1 x Intel I210	

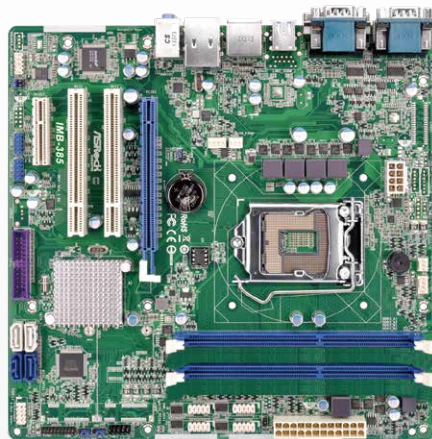
Rear I/O	IMB-390-L	IMB-390-D
VGA	1	N/A
DVI	1	
HDMI	1	
DisplayPort	1	
Ethernet	2	
USB	4 x USB 3.0	
Audio Jack	3 (Mic-in, Line-in, Line-out)	
Serial	1 x COM (RS-232/422/485)	
PS/2	1 x PS/2 combo	

Internal Connector		
USB	2 x USB 3.0, 6 x USB 2.0	N/A
LVDS	1	
eDP	N/A	
VGA	N/A	
Serial	5 x COM (RS-232)	
SATA	6 x SATA3 (one shared with mSATA)	
Parallel	1 (shared with GPIO)	
GPIO	8 x GPI + 8 x GPO	
SATA PWR Output Con	N/A	
Speaker Header	1	
TPM	1 x IC onboard	

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements	
Input PWR	ATX PWR Con (24+8-pin)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-385



IMB-385

Micro-ATX Motherboard

Spotlight Features

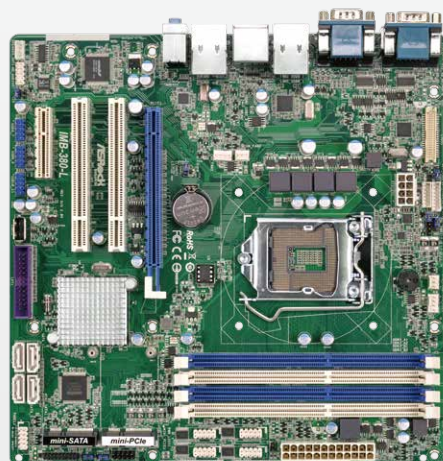
- Supports Intel® 5th/ 4th Gen (Broadwell-S/Haswell-S) Core™ Processors (Socket 1150)
- Intel® H81 Chipset
- Supports DDR3 1066/1333/1600, up to 16GB
- 6 x COM
- 1 x HDMI, 1 x VGA, 1 x DisplayPort
- 2 x USB 3.0, 6 x USB 2.0, 2 x SATA3, 2 x SATA2
- 2 x PCI, 1 x PCIe x16, 1 x PCIe x4
- 1 x Intel LAN
- 1 x TPM Header

IMB-380-L / IMB-380-D

Micro ATX Motherboard

Spotlight Features

- Supports Intel® 5th/ 4th Gen (Broadwell-S/Haswell-S) Core™ Processors (Socket 1150)
- Intel® Q87 Chipset
- Supports DDR3 1600MHz, up to 32GB
- 6 x COM
- 1 x HDMI, 1 x VGA, 1 x LVDS/DisplayPort
- 4 x USB 3.0, 9 x USB 2.0, 4 x SATA3
- 2 x PCI, 1 x Mini-PCIe, 1 x mSATA, 1 x PCIe x16, 1 x PCIe x4
- 2 x Intel LAN
- 1 x TPM Header



IMB-380-L



IMB-380-D



IMB-380-L

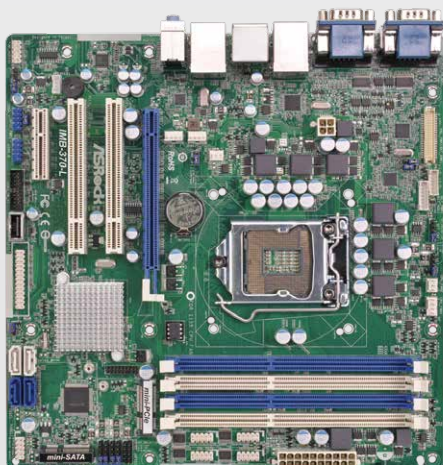
IMB-380-D

IMB-370-L / IMB-370-D

Micro ATX Motherboard

Spotlight Features

- Supports Intel® 3rd/ 2nd Gen (Ivy Bridge and Sandy Bridge) Core™ Processors (Socket 1155)
- Intel® Q77 Chipset
- Supports DDR3 1600, up to 32GB
- 6 x COM
- 1 x D-Sub, 1 x HDMI, 1 x LVDS/DisplayPort
- 2 x USB 3.0, 8 x USB 2.0, 2 x SATA3, 2 x SATA2
- 2 x PCI, 1 x Mini-PCIe, 1 x mSATA, 1 x PCIe x16, 1 x PCIe x4
- 2 x Intel LAN
- 1 x TPM Header



IMB-370-L



IMB-370-D



IMB-370-L

IMB-370-D

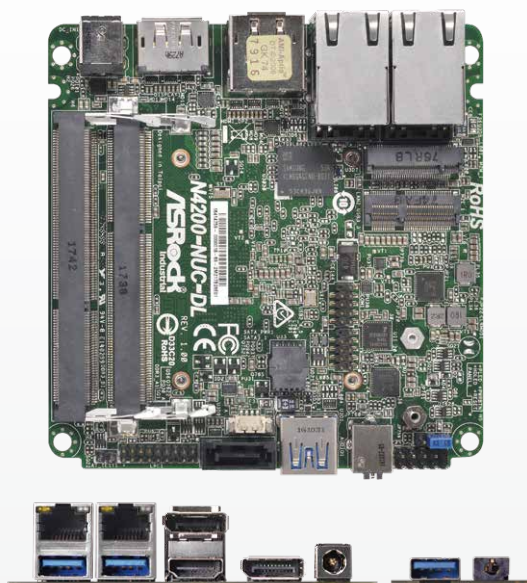


Preliminary

N3350-NUC-DL/N4200-NUC-DL

Spotlight Features

- Intel® Apollo Lake SoC Processor
- Supports Dual Channel DDR3L SO-DIMM 1867 MT/s up to 8GB
- 32GB EMMC (Option)
- 1 x HDMI, 2 x Displayport,
- 3 xUSB 3.0, 2 xUSB 2.0, 1 x SATA3
- 1 x M.2 2230, Key E (PCIe x1 +USB)
- 2 x RJ45 Realtek RTL8111H
- 1 x TPM on board



Specifications

Processor System	
	N3350-NUC-DL N4200-NUC-DL
Dimensions	NUC 4.09" x 4.02"
CPU	Intel® Apollo Lake N3350 SoC Intel® Apollo Lake N4200 SoC
Chipset	Intel SoC

Expansion Slot	
PCIe	N/A
Mini-PCIe	N/A
M.2	1 x M.2 2230, Key E (PCIe x1 +USB2.0), 1x M.2 2242/2260, Key M
mSATA	N/A

Memory	
Technology	Dual Channel DDR3L 1867
Max	16GB
Socket	2 x SO-DIMM

Graphics	
Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	N/A
LVDS	N/A
eDP	N/A
HDMI	Supports HDMI 1.4b, Max. resolution 3840 x 2160@30Hz
DVI	N/A
DisplayPort	Supports DP 1.2, Max. resolution 4096 x 2160@60Hz
Multi Display	Triple Display

Ethernet	
Interface	10/100/1000 Mbps
Controller	2x Realtek RTL8111H

Rear I/O	N3350-NUC-DL	N4200-NUC-DL
VGA	N/A	
DVI	N/A	
HDMI	1	
DisplayPort	2	
Ethernet	2	
USB	2 x USB 3.0	
Audio Jack	1 x (Mic-in. Line-out)	
Serial	N/A	
PS/2	N/A	

Internal Connector	
USB	2 x USB2.0
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	1
SATA	1x SATA3 (6.0 Gb/s)
Parallel	N/A
GPIO	N/A
SATA PWR Output Con	1
Speaker Header	N/A
TPM	SPI TPM on-board design (optional)

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements	
Input PWR	12V DC-In (DC Jack)
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C

NUC



NUC 6100U / NUC 6300U

Spotlight Features

- Intel® 7th/ 6th Gen (KabyLake-U/Skylake-U) Core™ MCP Processors
- Supports Dual Channel DDR4 SO-DIMM 2133 ,up to 32GB
- 2 x HDMI, 1 x DP
- Supports Dual Display (HDMI2 + DP or HDMI 1 + HDMI 2)
- 3 xUSB 3.0, 1 x USB 3.1 (Type C), 1 x IR
- 2 x Intel LAN
- 19V DC-in

Specifications

Processor System	NUC 6100U	NUC 6300U
Dimensions	NUC (4.09-in x 4.02-in)	
CPU	i3-6100U, QC, 2.30 GHz, 15 W	i5-6300U, QC, 2.40 GHz, 15 W
Chipset	SOC	

Expansion Slot	
PCIe	N/A
Mini-PCIe	N/A
M.2	1 x Key E(Supports 2230), 1 x Key M(Supports 2260)
mSATA	N/A

Memory	
Technology	Dual Channel DDR4 2133 MHz
Max.	32 GB
Socket	2 x SO-DIMM

Graphics	
Controller	Intel® HD Graphics 520
VGA	N/A
LVDS	N/A
eDP	N/A
HDMI	HDMI 1 : Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Dual Display

Ethernet		
Interface	10/100/1000 Mbps	
Controller	1 x Intel i219V	1 x Intel i219LM (vPro, TPM)

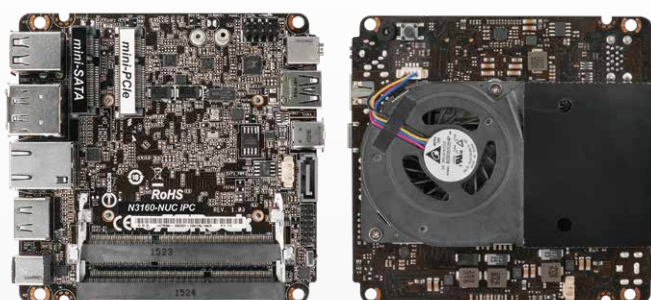
Rear I/O	NUC 6100U	NUC 6300U
VGA	N/A	
HDMI	2	
DVI-I/D	N/A	
Display Port	1	
Ethernet	1	
USB	4 (3 x USB 3.0 compliant, 1 x USB 3.1 Type C)	
Audio	1 (Mic-in, Line-out)	
Serial	N/A	
e-SATA	N/A	
PS/2	N/A	

Internal Connector	
USB	N/A
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	N/A
SATA	1 x SATA3
Parallel	N/A
GPIO	N/A
SATA PWR Output Con	1
Speaker Header	N/A
TPM	N/A

Watchdog Timer	
Output	N/A
Interval	0

Power Requirements	
Input PWR	19V / 65W DC-In (DC Jack)
Power On	ATX Supported -ATX: Press Button to PWR on after Power input ready

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



N3160-NUC IPC / N3710-NUC IPC

Spotlight Features

- Intel® Braswell SoC Processor
 - N3160-NUC IPC (N3160, QC, 1.60 GHz, 6 W)
 - N3710-NUC IPC (N3710, QC, 1.60 GHz, 6 W)
- 2 x HDMI, 1 x DisplayPort
- 1 x Giga LAN
- 4 x USB 3.0 (1 x Type C), 1 x Audio-out with MIC-In
- 1 x mSATA, 1 x Mini-PCle
- Triple display (2 x HDMI, 1 x DisplayPort), Support 4K Display and Playback

Specifications

Processor System	N3160-NUC IPC	N3710-NUC IPC
Dimension	4.09" x 4.02" (104 x 102mm)	
CPU	N3160, QC, 1.60 GHz, 6 W	N3710, QC, 1.60 GHz, 6 W
Chipset	SOC	

Expansion Slot	
PCIe	N/A
Mini-PCle	1 x half size (Supports PCIe x1 & USB device)
M.2	N/A
mSATA	1 (Only support SATA)

Memory	
Technology	Dual Channel DDR3L 1066/1600 MHz SDRAM
Max.	16 GB
Socket	2 x SO-DIMM

Graphics	
Controller	Intel® Gen8 Intel Graphics DX 11*, OGL3.2
VRAM	share Memory
VGA	N/A
LVDS	N/A
HDMI	Supports HDMI 1.4a, max resolution 3840x2160@30Hz
DVI	N/A
Display Port	Supports DP 1.1a, max resolution 3840x2160@30Hz
Multi Display	Triple Display

Ethernet	
Interface	10/100/1000 Mbps
Controller	1x Realtek RTL 8111G

Rear I/O	N3160-NUC IPC	N3710-NUC IPC
VGA	N/A	
DVI	N/A	
HDMI	2	
DisplayPort	1	
Ethernet	1	
USB	3 x USB 3.0 Type-A, 1 x USB 3.0 Type-C	
Audio Jack	1(Mic-in, Line-out)	
Serial	N/A	
PS/2	N/A	

Internal Connector	
USB	N/A
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	N/A
SATA	1 x SATA3
Parallel	N/A
GPIO	N/A
SATA PWR Output Con	1
Speaker Header	N/A
TPM	N/A

Watchdog Timer	
Output	N/A
Interval	N/A

Power Requirements	
Input PWR	12V DC-In (DC Jack)
Power On	ATX Supported -ATX: Press Button to PWR on after Power input ready

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

IMB-1710

ATX Motherboard

Coming Soon

Spotlight Features

- Socket LGA 1151 for Intel Core i7/i5/i3/Celeron
- Supports Dual Channel DDR4 Long-DIMM 2400/2666, up to 64GB with ECC design
- 2 x Displayport, 1 x HDMI, 1 x VGA
- 2 x USB 3.1 Gen2, 4 x USB 3.0, 6 x USB 2.0, 6 x SATA3, 6 x COM
- 1 x PCIe x16, 1 x PCIe x8, 2 x PCIe x4, 3 x PCI, 1 x mini-PCIe
- 1 x M.2 Key E, 1 x M.2 Key M
- 2 x Intel LAN
- 1 x TPM 2.0 IC
- ATX PWR 24+8-pin
- Support RAID 0, 1, 5, 10

Specifications

Processor System	
Dimensions	ATX (12-in x 9.6-in)
CPU	Socket LGA 1151 for Intel Core i7/i5/i3/Celeron
Chipset	Intel® Q370

Expansion Slot	
PCIe	1 x PCIe x16 (Support riser card), 1 x PCIe x8, 2 x PCIe x4
PCI	3
mini-PCIe	1 x Full/Half with PCIe x1 and USB 2.0
M.2	1x M.2 (Key E, 2230) with PCIe x1, CNVI and USB2.0 for Wireless 1x M.2 (Key M, 2242/2260/2280) with PCIe x4 and shared SATA3 for SSD

Memory	
Technology	Dual Channel DDR4 2400/2666 MHz
Max	64 GB
Socket	4 x LONG-DIMM

Graphics	
VGA	Max resolution up to 1920x1200 @60Hz
DVI	N/A
LVDS	N/A
eDP	N/A
HDMI	Max resolution up to 4096x2304@60Hz
DisplayPort	Max resolution up to 4096x2304@60Hz
Multi Display	Triple Display

Ethernet	
Interface	10/100/1000 Mbps
Controller	1 x Intel I210, 1 x Intel I219LM

Rear I/O	
VGA	1
DVI	N/A
HDMI	1
DisplayPort	2
Ethernet	2
USB	4 x USB3.0
Serial	2 x COM (RS-232/422/485)
Audio Jack	3 (Mic-in, Line-out, Line-in)
PS/2	1 x PS/2 Combo

Internal Connector	
USB	2 x USB3.1 Gen2(10Gb/s), 6 x USB2.0
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	4 x COM (RS-232)
SATA	6 x SATA3 (6.0Gb/s), one is shared with M.2
GPIO	8 x GPI, 8 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x Onboard TPM 2.0 IC

Watchdog Timer	
Output	From super I/O to drag RESETCON#
Interval	256 Segments, 0,1,2...255 Sec/Min

Power Requirements	
Input PWR	ATX PWR (24+8-pin)
Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready"

Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

IMB-X790

ATX Motherboard

Spotlight Features

- Supports the Intel® Xeon® E3-1200 v5 Processor and 7th and 6th Generation Intel® Core™ i3/Pentium®/Celeron® Processors
- Supports Dual Channel DDR4 2133MHz, up to 64GB
- Supports ECC DIMM memory modules
- 1 x VGA, 3 x Displayport
- 6 xUSB 3.0, 6 x USB 2.0, 6 x SATA3
- 1 x Mini-PCIe, 1 x PCIe x16, 1 x PCIe x8, 3 x PCI, 1 x PCIe x4, 1 x mSATA, 1 x M.2 (KEY M)
- 2 x Intel LAN
- 1 x TPM IC onboard
- ATX PWR Con (24+8-pin)
- Supports RAID 0, 1, 5, 10



Specifications

Processor System

Dimensions	ATX (12-in x 9.6-in)
CPU	Supports Intel® Xeon® E3-1200 v5 Processor and 7 th and 6 th Generation Intel® Core™ i3/Pentium®/Celeron® Processors
Chipset	Intel® C236

Expansion Slot

PCIe	1 x PCIe x16, 1 x PCIe x1, 1 x PCIe x8, 3 x PCI, 1 x PCIe x4
Mini-PCIe	1 x half/full size (Supports PCIe & USB device)
M.2	1 (KEY M, 2230/42/60/80/110) with SATA3 and 4 x PCIe x1 for SSD
mSATA	1 x full size (shared SATA and USB device)

Memory

Technology	Dual Channel DDR4 2133MHz Supports ECC UDIMM memory modules
Max.	64GB
Socket	4 x Long-DIMM

Graphics

VGA	Supports max resolution up to 1920 x 1200
LVDS	N/A
eDP	N/A
HDMI	N/A
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel I210, 1 x Intel I219LM

Rear I/O

VGA	1
DVI	N/A
HDMI	N/A
DisplayPort	3
Ethernet	2
USB	4 x USB 3.0
Audio Jack	3 (Mic-in, Line-in, Line-out)
Serial	1 x COM (RS-232), 1 x COM (RS-232/422/485)
PS/2	1 x PS/2 combo

Internal Connector

USB	2 x USB 3.0, 6 x USB 2.0 (2 x header, 2 vertical Type-A)
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	4 x COM (supports RS-232 only)
SATA	6 (SATA1 shared with MSATA, SATA5 shared with M.2)
Parallel	1
GPIO	8 x GPI + 8 x GPO
SATA PWR Output Con	0
Speaker Header	1
TPM	1 x onboard TPM 2.0 IC

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	ATX PWR Con (24+8-pin)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C

ATX



IMB-792

ATX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 2133MHz, up to 32GB
- 1 x VGA, 1 x HDMI
- 4 x USB 3.0, 5 x USB 2.0, 4 x SATA3, 10 x COM
- 1 x PCIe x16, 1 x PCIe x4, 5 x PCI,
- 1 x mSATA, 1 x M.2 (KEY M)
- 2 x Intel LAN
- 1 x TPM Header
- ATX PWR 24+8-pin

Specifications

Processor System

Dimensions	ATX (12-in x 9.6-in)
CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ Processors
Chipset	Intel® H110

Expansion Slot

PCIe	1 x PCIe x16, 1 x PCIe x4
PCI	5
mini-PCIe	N/A
mSATA	1 x full size with shared SATA3 and USB 2.0
M.2	1x M.2 (Key M, 2242/2260/2280) with shared SATA3 for SSD

Memory

Technology	Dual Channel DDR4 2133 MHz
Max	32 GB
Socket	2 x Long-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	Supports max resolution up to 1920x1200@60Hz
LVDS	N/A
eDP	N/A
HDMI	Max resolution up to 4096x2160@30Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel I210, 1 x Intel I219V

Rear I/O

VGA	1
DVI	N/A
HDMI	1
DisplayPort	N/A
Ethernet	2
USB	2 x USB3.0, 2 x USB2.0
Serial	2 x COM (RS-232/422/485)
Audio Jack	3 (Mic-in. Line-in. Line-out)
PS/2	2 (1 x keyboard, 1 x mouse)

Internal Connector

USB	2 x USB3.0, 3 x USB2.0
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	8 x COM(RS-232)
SATA	4x SATA3, one is shared with M.2 Key M, one is shared with mSATA
Parallel	1 (shared with GPIO)
GPIO	8 x GPI, 8 x GPO
SATA PWR Output Con	N/A
Speaker Header	1
TPM	1 x Header

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	ATX PWR 24+8-pin
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-791

ATX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (KabyLake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 2133, up to 32GB
- 1 x VGA, 2 x Displayport
- 4 x USB 3.0, 5 x USB 2.0, 4 x SATA3
- 1 x PCIe x16, 1 x PCIe x1, 3 x PCI, 1 x PCIe x4, 1 x Mini-PCIe
- 1 x mSATA
- 1 x Intel LAN
- ATX PWR Con (24+8-pin)

Specifications

Processor System

Dimensions	ATX (12-in x 9.6-in)
CPU	Supports Intel® 7 th / 6 th Gen (KabyLake-S/Skylake-S) Core™ Processors
Chipset	Intel® H110

Expansion Slot

PCIe	1 x PCIe x16, 1 x PCIe x1, 3 x PCI, 1 x PCIe x4
Mini-PCIe	N/A
M.2	N/A
mSATA	1 x full size (Supports SATA & USB device)

Memory

Technology	Dual Channel DDR4 2133MHz
Max.	32GB
Socket	2 x Long-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	Supports max resolution up to 1920 x 1200
LVDS	N/A
eDP	N/A
HDMI	N/A
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel I219V

Rear I/O

VGA	1
DVI	N/A
HDMI	N/A
DisplayPort	3
Ethernet	1
USB	4 x USB 3.0
Audio Jack	3 (Mic-in, Line-in, Line-out)
Serial	1 x RS-232, 1 x RS-232/422/485
PS/2	1 x PS/2 combo

Internal Connector

USB	5 x USB 2.0 (2 x 2.54 pitch header, 1 x USB 2.0 vertical Type-A)
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	2 x COM (supports RS-232 only)
SATA	4 (SATA1 shared with mSATA)
Parallel	1
GPIO	8 x GPI + 8 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	N/A

Watchdog Timer

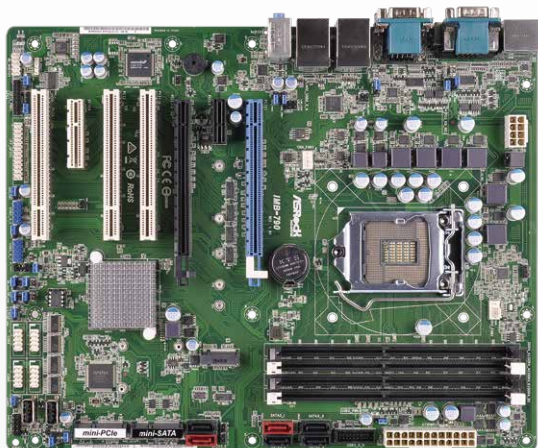
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	ATX PWR Con (24+8-pin)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



IMB-790

ATX Motherboard

Spotlight Features

- Supports Intel® 7th/ 6th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports Dual Channel DDR4 2133MHz, up to 64GB
- 1 x VGA, 3 x Displayport
- 6 x USB 3.0, 6 x USB 2.0, 6 x SATA3
- 1 x Mini-PCle, 1 x PCIe x16, 1 x PCIe, 1 x PCIe x8, 3 x PCI,
- 1 x PCIe x4, 1 x mSATA, 1 x M.2 (KEY M)
- 2 x Intel LAN
- 1 x TPM IC onboard
- ATX PWR Con (24+8-pin)
- Supports RAID 0, 1, 5, 10

Specifications

Processor System	
Dimensions	ATX (12-in x 9.6-in)
CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ Processors
Chipset	Intel® Q170

Expansion Slot	
PCIe	1 x PCIe x16, 1 x PCIe x1, 1 x PCIe x8, 3 x PCI, 1 x PCIe x4
Mini-PCIe	1 x half/full size (Supports PCIe & USB device)
M.2	1 (KEY M, 2230/42/60/80/110) with SATA3 and 4 x PCIe x1 for SSD
mSATA	1 x full size (shared SATA and USB device)

Memory	
Technology	Dual Channel DDR4 2133MHz
Max.	64GB
Socket	4 x Long-DIMM

Graphics	
Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	Supports max resolution up to 1920 x 1200
LVDS	N/A
eDP	N/A
HDMI	N/A
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Triple Display

Ethernet	
Interface	10/100/1000 Mbps
Controller	1 x Intel I210, 1 x Intel I219LM

Rear I/O	
VGA	1
DVI	N/A
HDMI	N/A
DisplayPort	3
Ethernet	2
USB	4 x USB 3.0
Audio Jack	3 (Mic-in, Line-in, Line-out)
Serial	1 x RS-232, 1 x RS-232/422/485
PS/2	1 x PS/2 combo

Internal Connector	
USB	2 x USB 3.0, 6 x USB 2.0 (2 x header, 2 vertical Type-A)
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	4 x COM (supports RS-232 only)
SATA	6 (SATA1 shared with MSATA, SATA5 shared with M.2)
Parallel	1
GPIO	8 x GPI + 8 x GPO
SATA PWR Output Con	0
Speaker Header	1
TPM	1 x onboard TPM 2.0 IC

Watchdog Timer	
Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements	
Input PWR	ATX PWR Con (24+8-pin)
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

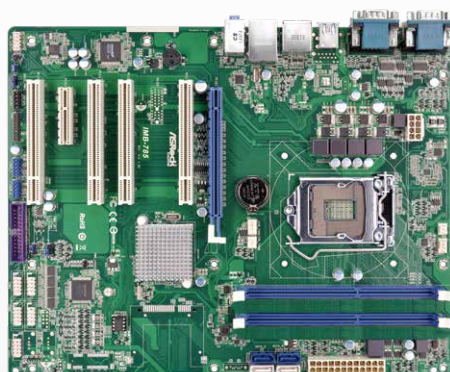
Environment	
Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C

IMB-785

ATX Motherboard

Spotlight Features

- Supports Intel® 5th/ 4th Gen (Broadwell-S/Haswell-S) Core™ Processors (Socket 1150)
- Intel® H81 Chipset
- Supports DDR3 1600, up to 16GB
- 6 x COM
- 1 x D-Sub, 1 x HDMI, 1 x DisplayPort
- 2 x USB 3.0, 8 x USB 2.0, 2 x SATA3, 2 x SATA2
- 4 x PCI, 1 x PCIe x16, 1 x PCIe x4
- 1 x Intel LAN
- 1 x TPM Header



IMB-785

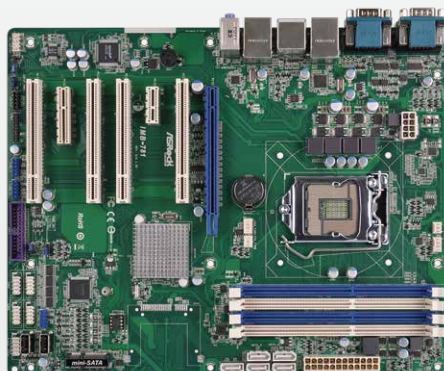


IMB-780/781

ATX Motherboard

Spotlight Features

- Supports Intel® 5th/ 4th Gen (Broadwell-S/Haswell-S) Core™ Processors (Socket 1150)
- Intel® Q87 Chipset
- Supports DDR3 1600, up to 32GB
- 6 x COM
- 1 x D-Sub, 1 x HDMI, 1 x DisplayPort
- 4 x USB 3.0, 10 x USB 2.0, 5 x SATA3
- 3 x PCI, 1 x PCIe x16, 2 x PCIe x4, 1 x PCIe x1, 1 x mSATA (IMB-780)
- 4 x PCI, 1 x PCIe x16, 1 x PCIe x4, 1 x PCIe x1, 1 x mSATA (IMB-781)
- 1 x CFast Card Socket (option)
- 2 x Intel LAN
- 1 x TPM Header



IMB-781



IMB-780

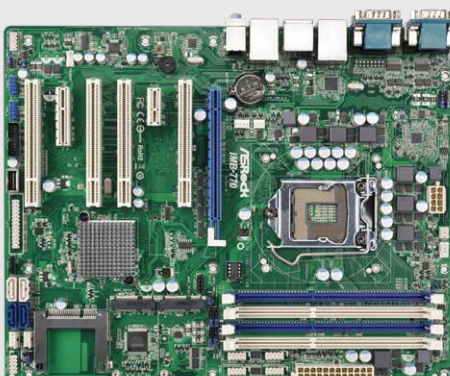


IMB-770

ATX Motherboard

Spotlight Features

- Supports Intel® 3rd/ 2nd Gen (Ivy Bridge and Sandy Bridge) Core™ Processors (Socket 1155)
- Intel® Q77 Chipset
- Supports DDR3 1600, up to 32GB
- 6 x COM
- 1 x D-Sub, 1 x HDMI, 1 x DisplayPort
- 4 x USB 3.0, 9 x USB 2.0, 2 x SATA3, 2 x SATA2
- 4 x PCI, 1 x mini-PCIe, 1 x mSATA, 1 x PCIe x16, 1 x PCIe x4, 1 x PCIe x1
- 1 x CFast Card Socket
- 2 x Intel LAN
- 1 x TPM Header



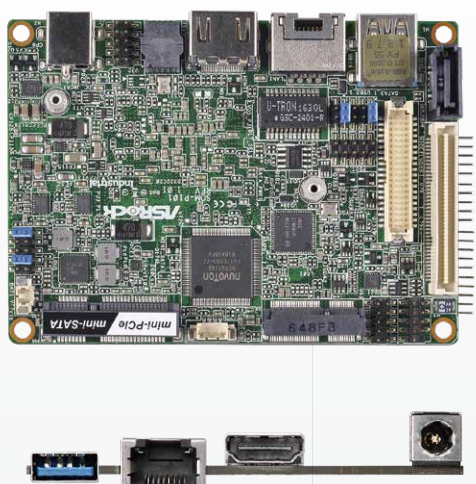
IMB-770



ATX



SOM-P101



Spotlight Features

- Intel® Apollo Lake SoC Processor
 - SOM-P101D (N4200)
 - SOM-P101L (N3350)
- Supports Single Channel DDR3L SO-DIMM 1867, up to 8GB
- 1 x HDMI
- 1 x USB 3.0 compatible with USB 2.0 , 1 x SATA3
- 1 x MIOe , 1 x Mini PCIe and mSATA combo
- 1 x M.2(Key E)
- 1 x Intel LAN
- 1 x TPM 2.0 IC
- 12V DC-in

Specifications

Processor System

Dimensions	PICO-ITX (3.9-in x 2.8-in)
CPU	-SOM-P101D (N4200, QC, 1.10 GHz, 6W) -SOM-P101L (N3350, DC, 1.10 GHz, 6W)
Chipset	(By CPU)

Expansion Slot

PCIe	N/A
mSATA/Mini PCIe	1x full size with SATA3 and USB 2.0
M.2	1 x M.2 Slot (Key E), supports type 2230 for WiFi + BT Module

Memory

Technology	DDR3L 1333/1600/1867 MHz
Max.	8GB
Socket	1 x SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
VGA	N/A
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	Supports max resolution up to 4096 x 2160@30Hz
DVI	N/A
DisplayPort	N/A
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel I210IT

Rear I/O

VGA	N/A
DVI	N/A
HDMI	1
DisplayPort	N/A
Ethernet	1
USB	1 x USB 3.0 compatible with USB 2.0
Audio Jack	N/A
Serial	N/A
PS/2	N/A

Internal Connector

USB	2 x USB 2.0 (1 x 2.00 pitch header)
LVDS	1
eDP	N/A
VGA	N/A
Serial	1 x RS-232/422/485 , 1 x RS232
SATA	1
Parallel	1
GPIO	4GPI + 4GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	1 x onboard TPM 2.0 IC

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

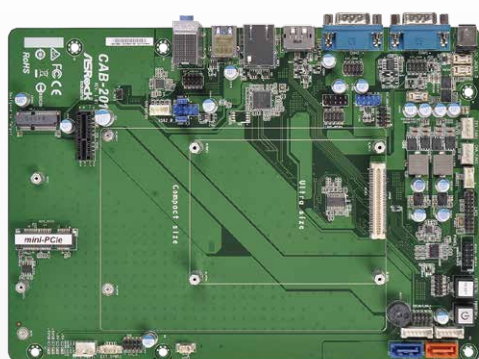
Input PWR	12V DC-in
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



CAB-201



Spotlight Features

- Supports PICO-ITX module
- 1 x DisplayPort
- 1 x USB 3.0, 1 x USB 2.0, 2 x SATA3
- 1 x PCIe
- 1 x mini-PCIe
- 1 x M.2(Key E)
- 1 x MIOe
- DC 12V DC-in

Specifications

Processor System

Dimension	Micro ATX (9.6-in x 6.7-in) / (244 mm x 170 mm)
CPU	By CPU Board
Chipset	By CPU Board

Expansion Slot

PCIe	1 x PCIe x1
Mini PCIe	1x full size(Mini PCIe only)
M.2	1 x M.2 Slot (Key E), supports type 2230 for WiFi + BT Module
mSATA	N/A
MIOe	HDMI or DP , 3 x USB2.0 or 1 x USB3.0 + 1 x USB2.0 , 4 x PCIe x1 , LPC bus , SMBus

Memory

Technology	By CPU Board
Max.	By CPU Board
Socket	N/A

Graphics

Controller	By CPU Board
VGA	N/A
LVDS	N/A
HDMI	N/A
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	By CPU Board

Ethernet

Interface	By CPU Board
Controller	By CPU Board
Connector	By CPU Board

Rear I/O

VGA	N/A
DVI	N/A
HDMI	N/A
DisplayPort	1
Ethernet	N/A
USB	1 x USB3.0 , 1 x USB2.0
Audio	N/A
Serial	N/A
PS/2	N/A

Internal Connector

USB	1 x USB 2.0
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	N/A
SATA	N/A
Parallel	N/A
GPIO	N/A
SATA PWR Output Con	N/A
Speaker Header	1
TPM	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V DC-in
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

SOM-Q101

QSeven Motherboard

Spotlight Features

- Intel® Apollo Lake - I
- Supports LPDDR4 2400MHz, Single / Dual / Quad Channel, up to 8GB
- 1 x DDI channels, 1 x eDP channel
- 2 x USB 3.0 SS, 8 x USB 2.0, 2 x SATA3, 2 x Com(RS-232 only)
- 4 x PCIe x1 (1 for Giga Lan)
- 1 x Intel LAN I210-IT

Specifications

Processor System

Dimensions	Qseven (2.8-in x 2.8-in)
CPU	Intel® Apollo Lake - I
Chipset	N/A

Expansion Slot

PCIe	4 x PCIe x1 Lane
Mini-PCIe	N/A
M.2	N/A
mSATA	N/A

Memory

Technology	Single / Dual / Quad Channel LPDDR4 2400
Max	8GB
Socket	N/A

Graphics

Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4, support 2x DDI, 1x eDP
VGA	N/A
DVI	N/A
LVDS	N/A
HDMI	N/A
DisplayPort	N/A
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel LAN I210IT

Environment

Operating Temperature	-20°C to 75°C
Storage Temperature	-40°C ~ 85°C

Rear I/O

VGA	N/A
DVI	N/A
HDMI	N/A
DisplayPort	N/A
Ethernet	N/A
USB	N/A
Audio Jack	N/A
Serial	N/A
PS/2	N/A

Internal Connector

USB	2 x USB 3.0/ 8 x USB2.0
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	2(RX/TX only)
SATA	2 x SATA3 (6.0 Gb/s)
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	N/A
Speaker Header	N/A
TPM	1 x onboard TPM 2.0 IC
Onboard SSD	EMMC 32GB (optional)
Others	LPC, SMBus, I2C, SPI, HD Audio
Super I/O	N/A

Watchdog Timer

Interval	0 ~ 255 sec
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Power Requirements

Input PWR	N/A
Power On	N/A



Preliminary

SOM-QA101



Spotlight Features

- AMD Embedded G-Series SOC processor
- Supports DDR3L 1333, up to 8GB
- 1 x HDMI , 1 x DP , 1 x LVDS (By Carrier Board)
- 1 x USB 3.0, 5 x USB2.0 , 2 x SATA3 (By Carrier Board)
- 3 x PCIe x1 slot (By Carrier Board)
- 1 x Mini-PCIe (By Carrier Board)
- 1 x mSATA (By Carrier Board)
- 2 x Intel LAN (By Carrier Board)
- 12~24V DC-in (By Carrier Board)

Specifications

Processor System

Dimensions	Qseven (2.8-in x 2.8-in)
CPU	GX-412HC, QC, 1.2GHz, 7W
Chipset	By CPU

Expansion Slot

PCIe	3 x PCIe x1 (By Carrier Board)
Mini-PCIe	1 x full/ half size (By Carrier Board)
M.2	N/A
mSATA	1 x full size (By Carrier Board)

Memory

Technology	DDR3L 1333MHz
Max.	8GB
Socket	No

Graphics

Controller	Integrated AMD Radeon™ R3E Graphics
VGA	N/A
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	Supports max resolution up to 4096 x 2160@24Hz
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel® I211 (By Carrier Board)

Rear I/O

VGA	N/A
DVI	N/A
HDMI	1 (By Carrier Board)
DisplayPort	1 (By Carrier Board)
Ethernet	1 (By Carrier Board)
USB	1 x USB3.0 , 5 x USB2.0 (By Carrier Board)
Audio Jack	2 (By Carrier Board)
Serial	2 x RS-232 (By Carrier Board)
PS/2	1 (By Carrier Board)

Internal Connector

USB	N/A
LVDS	1 (By Carrier Board)
eDP	N/A
VGA	N/A
Serial	N/A
SATA	2 x SATA3 (By Carrier Board)
Parallel	N/A
GPIO	4 x GPI + 4 x GPO (By Carrier Board)
SATA PWR Output Con	1 (By Carrier Board)
Speaker Header	N/A
TPM	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	By Carrier Board
Power On	By Carrier Board

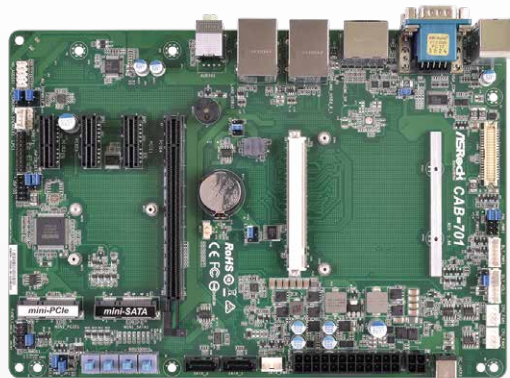
Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

CAB-701



Spotlight Features

- Supports Qseven Module
- 1 x HDMI , 1 x DP , 1 x LVDS
- 1 x USB 3.0, 5 x USB2.0 , 2 x SATA3
- 3 x PCIe x1 slot
- 1 x Mini-PCle
- 1 x mSATA
- Gigabit LAN : 2 x IntelLAN
- 12~24V DC-in

Specifications

Processor System

Dimensions	Micro ATX (9.6-in x 6.7-in)
CPU	By CPU Board
Chipset	By CPU Board

Expansion Slot

PCIe	3 x PCIe x1
Mini-PCle	1 x full/ half size
M.2	N/A
mSATA	1xfull , shared with SATA_2

Memory

Technology	By CPU Board
Max	By CPU Board
Socket	N/A

Graphics

Controller	By CPU Board
VRAM	N/A
VGA	Supports max resolution up to 1920 x 1200@60Hz
LVDS	N/A
HDMI	Supports max resolution up to 4096 x 2160@24Hz
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel® I211

Rear I/O

VGA	N/A
DVI	N/A
HDMI	1
DisplayPort	1
Ethernet	1
USB	1 x USB3.0 , 5 x USB2.0
Audio Jack	2
Serial	2 x RS-232
PS/2	1 x PS/2 combo

Internal Connector

USB	N/A
LVDS	1
eDP	N/A
VGA	N/A
Serial	N/A
SATA	2 x SATA3
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	N/A
TPM	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V~24V DC-In
Power On	AT/ATX Supported AT : Directly PWR on as Power input ready ATX: Press Button to PWR on after Power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



Preliminary

COM-602

COM Express Motherboard

Spotlight Features

- Intel® Atom™ N4200 & Pentium™ and Celeron™ N Series Processors
- Supports Dual Channel DDR3L 1866 non-ECC up to 8GB
- 32G EMMC (optional)
- 1 x HDMI, 1 x Displayport, 1 x eDP, 1 x LVDS, 1 x VGA
- 2 x USB 3.0, 8 x USB 2.0, 2 x SATA3, 2 x COM
- 5 x PCIe x1, 1 x PCIe x4 Slot + 1 PCIE x 1 (Optional), 1 x PCIe x1 (Giga Lan)
- 1 x Intel LAN i210IT, 1 x Intel LAN i210AT
- 1 x TPM Header
- ATX (Vin 4.75-20V, Vsb 4.75-5.25V)
- AT (Vin 4.75-20V)

Specifications

Processor System

Dimensions	COM Express (3.74-in x 3.74-in)
CPU	BGA1296 for Intel® Apollo Lake SoC
Chipset	N/A

Expansion Slot

PCIe	6 x PCIe x1 Lane
Mini-PCIe	N/A
M.2	N/A
mSATA	N/A

Memory

Technology	Dual Channel DDR3L 1866 MHz
Max	8GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4, support 2x DDI, 1x eDP
VGA	N/A
DVI	N/A
LVDS	N/A
HDMI	N/A
DisplayPort	N/A
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel® I210IT 1 x Intel® I210AT

Rear I/O

VGA	N/A
DVI	N/A
HDMI	N/A
DisplayPort	N/A
Ethernet	N/A
USB	N/A
Audio Jack	N/A
Serial	N/A
PS/2	N/A

Internal Connector

USB	2 x USB 3.0/ 8 x USB2.0
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	2(RX/TX only)
SATA	2 x SATA3 (6.0 Gb/s)
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	N/A
Speaker Header	N/A
TPM	1 x Header

Watchdog Timer

Output	From SoC to drag resetion
Interval	0 ~ 255 sec

Power Requirements

Input PWR	ATX (Vin 4.75-20V, Vsb 4.75-5.25V)
Power On	AT (Vin 4.75-20V)

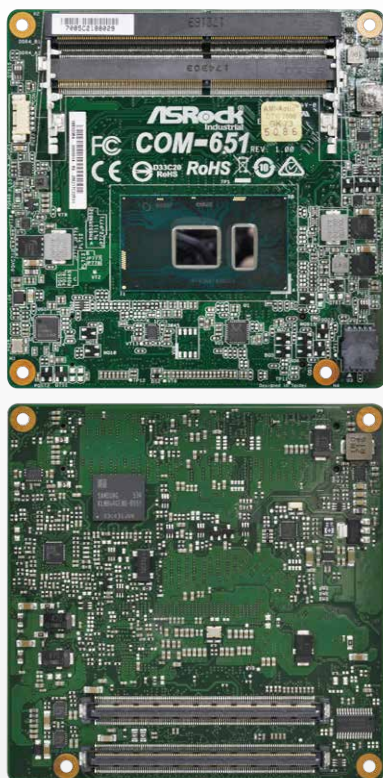
Environment

Operating Temperature	0°C ~ 60°C
Storage Temperature	-40°C ~ 85°C



Preliminary

COM-651



Spotlight Features

- BGA1356 for Intel® Core i7/i5/i3/Celeron (Skylake U)
- Supports Dual Channel DDR4 SO-DIMM 2133, up to 32GB
- 2 x DDI channels, 1 x eDP channel
- 4 x USB 3.0 SS, 8 x USB 2.0, 3 x SATA3, 2 x COM
- 6 x PCIe x1 (1 for Giga Lan)
- 1 x Intel LAN
- 1 x TPM 2.0 IC

Specifications

Form Factor

Dimension	COM Express Compact Size 95 x 95mm (3.74 in x 3.74 in)
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Processor System

CPU	BGA1356 for Intel® Core i7/i5/i3/Celeron (Skylake U)
Chipset	N/A

Expansion Slot

PCIe	6 x PCIe x1 Lane (1 for Giga Lan)
------	------------------------------------

Memory

Technology	Dual Channel DDR4 2133
Max	32GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4, support 2x DDI, 1x eDP
Multi Display	Triple Display

Ethernet

Ethernet	10/100/1000 Mbps
Controller	1 x Intel LAN I219LM / I219V

Internal Connector

USB	4 x USB 3.0 SS/ 8 x USB 2.0
Serial	2(RX/TX only)
SATA	3 x SATA3
GPIO	4 x GPI + 4 x GPO
TPM	1 x onboard TPM 2.0 IC
Onboard SSD	EMMC 32GB (optional)
Others	LPC, SMBus, I2C, SPI, HD Audio

Watchdog Timer

Interval	0 ~ 255 sec
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Power Requirements

Input PWR	ATX: 12V±5%/5Vsb±5%, or AT: 12V±5%
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Environment

Temperature	0°C to 60°C
Storage Temperature	-40°C ~ 85°C



COM-601



Spotlight Features

- COM Express Compact Size
- Intel® Braswell SoC Processor
- Supports DDR3L 1333/1600MHz, 2 x SO-DIMM, up to 8GB system memory
- 3 x DDI channels, 1 x eDP channel
- 7 x PCIe x1 Lanes (1 for Intel I211AT GbE)
- 4 x USB SS, 8 x USB 2.0, 2 x SATA 3

Specifications

Processor System

Dimension	COM Express Compact Size 95x95mm (3.74-in x 3.74-in)
CPU	N3160, QC, 1.60 GHz, 6 W
Chipset	SoC

Expansion Slot

PCIe	7 x PCIe x1 Lane
Mini-PCIe	By Carrier Board
M.2	N/A
mSATA	By Carrier Board

Memory

Technology	DDR3L 1333/1600 MHz
Max	8GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® HD Graphics
VGA	N/A
LVDS	Supports max resolution up to 1920 x 1200@60Hz
eDP	N/A
HDMI	Supports max resolution up to 1920 x 1200
DVI	N/A
DisplayPort	Supports max resolution up to 2560 x 1600
Multi Display	Triple Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel I210 (By Carrier Board)

Rear I/O

VGA	1 (Shared with DP)
DVI	N/A
HDMI	1 (By Carrier Board)
DisplayPort	2 (By Carrier Board)
Ethernet	1 (By Carrier Board)
USB	4 x USB 3.0 (By Carrier Board)
Audio Jack	3 (Mic-in, Line-in, Line-out)
Serial	2
PS/2	1 (By Carrier Board)

Internal Connector

USB	2 x USB 2.0 (By Carrier Board)
LVDS	1 (By Carrier Board)
eDP	N/A
VGA	N/A
Serial	2 x TX/RX Only (By Carrier Board)
SATA	4 x SATA3 (By Carrier Board)
Parallel	1 (By Carrier Board)
GPIO	4 x GPI + 4 x GPO (By Carrier Board)
SATA PWR Output Con	1 (By Carrier Board)
Speaker Header	N/A
TPM	N/A

Watchdog Timer

Interval	1,2...255 Sec
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Power Requirements

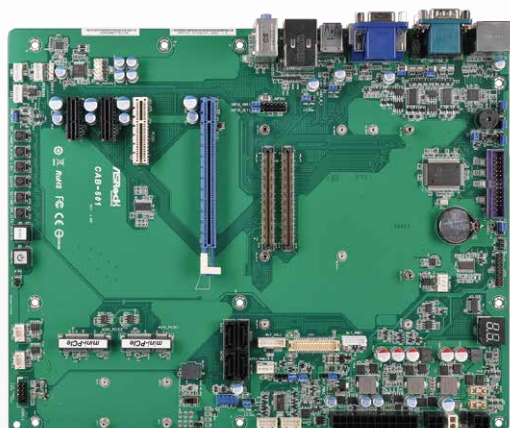
Input PWR	By Carrier Board
Power On	By Carrier Board

Environment

Temperature	0°C–60°C
Storage Temperature	-40°C–85°C



CAB-601



Spotlight Features

- COM Express Type 6 Pin Out
- Supports COM Express Basic/Compact/Mini Module
- Supports three Digital Display Interfaces (DDI) with HDMI/DisplayPort output
- 1 x PCIe x16 slot, 1 x PCIe x4 slot, 2 x PCIe x1 slot

Specifications

Processor System

Dimensions	ATX (9.6-in x 12-in)
CPU	By CPU Board
Chipset	By CPU Board

Expansion Slot

PCIe	1 x PCI x16, 1 x PCIe x4, 2 x PCIe x1
Mini PCIe	1xhalf/full (supports PCIe x1 & USB device) (Depend on COM-Express Module)
mSATA	N/A

Memory

Technology	By CPU Board
Max	By CPU Board
Socket	By CPU Board

Graphics

Controller	By CPU Board
VRAM	By CPU Board
VGA	By CPU Board
LVDS	By CPU Board
HDMI	By CPU Board
DVI	N/A
DisplayPort	By CPU Board
Multi Display	By CPU Board

Ethernet

Interface	By CPU Board
Controller	By CPU Board

Watchdog Timer

Interval	1,2,...255 Sec
Input PWR	24-pin / 4-pin ATX PWR Con

Rear I/O

VGA	1
DVI	N/A
HDMI	1
DisplayPort	2
Ethernet	1
USB	4 x USB 3.0
Audio Jack	3 (Mic-in, Line-in, Line-out)
Serial	2
PS/2	1 x PS/2 combo

Internal Connector

USB	2 x USB 2.0
LVDS	1
eDP	N/A
VGA	N/A
Serial	2 x TX/RX Only
SATA	4 x SATA3
Parallel	1
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	1
TPM	N/A

Power Requirements

Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready
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Environment

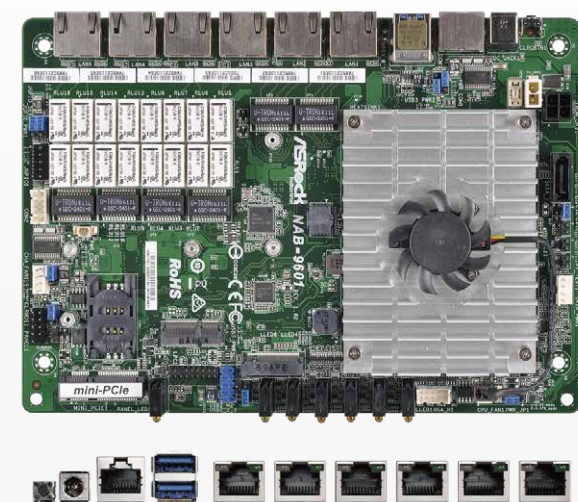
Temperature	0°C–60°C
Storage Temperature	-40°C–85°C



NAB-9601

Spotlight Features

- Intel® Braswell SoC Processor
- Supports Single Channel DDR3L SO-DIMM up to 1600, up to 8GB
- 1 x VGA
- 2 x USB 3.0
- 1 x M.2 (Key E) , 1 x M.2 (Key M)
- 6 x Intel LAN
- Supports Bypass Function
- 1 x MiniPCle with SIM socket for WiFi/3G/LTE
- 1 x TPM 2.0 IC
- 12V DC-in Jack / 4-pin ATX PWR Con.



Specifications

Processor System

Dimension	200x140mm (7.9-in x 5.5-in)
CPU	Intel® Braswell SoC Processor
Chipset	(By CPU)

Expansion Slot

PCIe	N/A
Mini PCIe	1 (full/half size, supports PClex1 and USB device)
mSATA	N/A
M.2	1 x M.2 Slot (Key E), supports type 2230 for WiFi + BT Module (BT function shares from internal USB) 1 x M.2 Slot (Key M), supports type 2242/2280 M.2 for SATA only

Memory

Technology	Single Channel DDR3L up to 1600 MHz
Max	8GB
Socket	1 x SO-DIMM

Graphics

Controller	Intel® HD Graphics
VGA	Supports max. resolution 1920 x 1200
LVDS	N/A
HDMI	N/A
DVI	N/A
DisplayPort	N/A
Multi Display	N/A

Ethernet

Interface	10/100/1000 Mbps
Controller	6 x Intel I211-AT (co-lay I210-AT)

Rear I/O

VGA	N/A
DVI	N/A
HDMI	N/A
DisplayPort	N/A
Ethernet	6
USB	2 x USB 3.0
Audio	N/A
Serial	1 x Console
PS/2	N/A

Internal Connector

USB	2 x USB 3.0
LVDS	N/A
eDP	N/A
VGA	1
Serial	1
SATA	1
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	N/A
TPM	1 x Onboard TPM 2.0 IC

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V DC-in Jack / 4-pin ATX PWR Con.
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

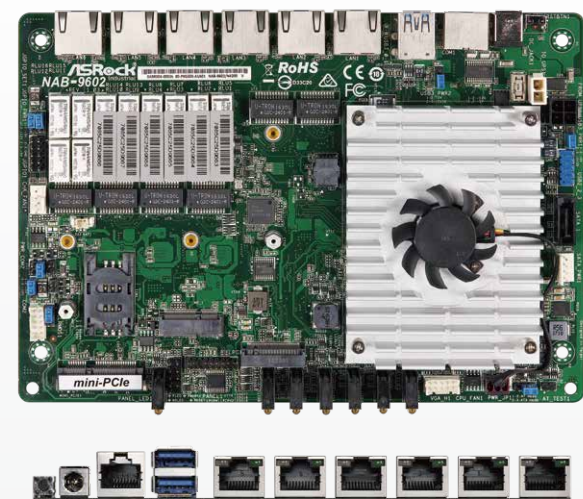
Temperature	0°C–60°C
Storage Temperature	-40°C–85°C



NAB-9602

Spotlight Features

- Intel® Apollo Lake SoC Processor
- Supports Single Channel DDR3L SO-DIMM 1866, up to 8GB
- 1 x VGA
- 2 x USB 3.0
- 1 x M.2 (Key E) , 1 x M.2 (Key M)
- 6 x Intel LAN
- Supports Bypass Function
- 1 x MiniPCIe with SIM socket for WiFi/3G/LTE
- 1 x TPM 2.0 IC
- 12V DC-in Jack / 4-pin ATX PWR Con.



Specifications

Processor System

Dimensions	(7.9-in x 5.5-in)
CPU	N4200, QC, 1.10 GHz, 6W
Chipset	SoC

Expansion Slot

PCIe	N/A
Mini-PCIe	1 x full/half size (PCIex1 and USB device)
M.2	1 x M.2 Slot (Key E), supports type 2230 for WiFi + BT Module 1 x M.2 Slot (Key M), supports type 2242/2280 M.2 for SATA only
mSATA	N/A

Memory

Technology	Single Channel DDR3L 1866 MHz
Max	8GB
Socket	1 x SO-DIMM

Graphics

Controller	Intel® HD Graphics
VGA	1
LVDS	N/A
eDP	N/A
HDMI	N/A
DVI	N/A
DisplayPort	N/A
Multi Display	N/A

Ethernet

Interface	10/100/1000 Mbps
Controller	6 x Intel I211

Rear I/O

VGA	N/A
DVI	N/A
HDMI	N/A
DisplayPort	N/A
Ethernet	6
USB	2 x USB 3.0
Audio Jack	N/A
Serial	1 x Console
PS/2	N/A

Internal Connector

USB	2 x USB 2.0
LVDS	N/A
eDP	N/A
VGA	1
Serial	1
SATA	1
Parallel	N/A
GPIO	4 x GPI + 4 x GPO
SATA PWR Output Con	1
Speaker Header	N/A
TPM	1 x Onboard TPM 2.0 IC

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V DC-in Jack / 4-pin ATX PWR Con.
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

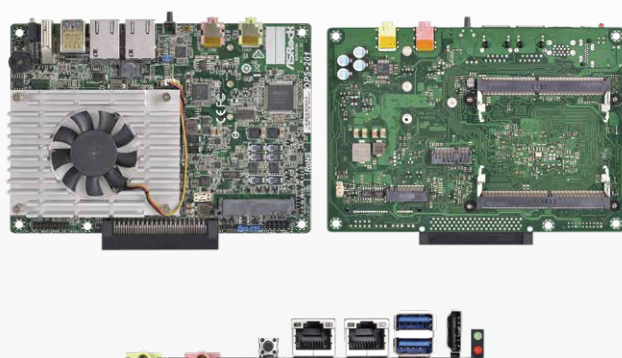
Environment

Temperature	0°C–60°C
Storage Temperature	-40°C–85°C



Preliminary

OPS-201



Spotlight Features

- Intel® 7th/ 6th Gen (KabyLake-U/Skylake-U) Core™ MCP Processors
- Supports DDR4 SO-DIMM 1866, up to 32GB
- 1 x HDMI
- 2 x USB 3.0, 1 x SATA3
- 1 x M.2 (Key E) , 1 x M.2 (Key M)
- 2 x IntelLAN
- 12~19V DC-in

Specifications

Processor System

Dimensions	OPS(6.5-in x 4.5-in)
CPU	i5-6300U, QC, 2.40 GHz, 15 W
Chipset	SoC

Expansion Slot

PCIe	N/A
Mini-PCIe	N/A
M.2	1 x M.2 Slot (Key E), supports type 2230 for WiFi + BT Module 1 x M.2 Slot (Key M), supports type 2242/2280 M.2 for SATA only
mSATA	N/A

Memory

Technology	Dual Channel DDR4 1866MHz
Max.	32GB
Socket	2 x SO-DIMM

Graphics

Controller	Intel® Gen9 Intel Graphics DX 11/12, OGL4.3/4.4
VGA	N/A
LVDS	N/A
HDMI	Supports max resolution up to 4096 x 2160@60Hz
DVI	N/A
DisplayPort	Supports max resolution up to 4096 x 2160@60Hz
Multi Display	Dual Display

Ethernet

Interface	10/100/1000 Mbps
Controller	1 x Intel® I219-LM/V , 1 x Intel® I211AT

Rear I/O

VGA	N/A
DVI	N/A
HDMI	1 x HDMI2.0
DisplayPort	1
Ethernet	2
USB	2 x USB3.0
Audio Jack	N/A
Serial	N/A
PS/2	N/A

Internal Connector

USB	N/A
LVDS	N/A
eDP	N/A
VGA	N/A
Serial	N/A
SATA	1 x SATA3
Parallel	N/A
GPIO	N/A
SATA PWR Output Con	1
Speaker Header	N/A
TPM	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V~19V DC-In
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Operating Temperature	0°C – 60°C
Storage Temperature	-40°C – 85°C



NAS-9601



Spotlight Features

- N3160, QC, 1.6GHz, 6W
- Supports Single Channel DDR3L SO-DIMM 1600, up to 8GB
- 1 x VGA
- 2 x USB 3.0
- 1 x M.2 (Key E) , 1 x M.2 (Key M)
- 6 x Intel LAN
- Supports Bypass Function
- 1 x MiniPCIe with SIM socket for WiFi/3G/LTE
- 1 x TPM
- 12V DC-in Jack / 4-pin ATX PWR Con.

Specifications

Processor System

CPU	N3160, QC, 1.6GHz, 6W
Memory	Single Channel DDR3L up to 1600 MHz
Chipset	By CPU
Graphic	Intel® HD Graphics
LAN Chipset	6 x Intel i211
Watch Dog	256 segments, 0,1,2...255sec/min

Expansion Slot

PCIe	N/A
Mini PCIe	1 x full/half size (Supports PCIe1 and USB device)
Msata	N/A
M.2	1 x M.2 Slot (Key E), supports type 2230 for WiFi + BT Module 1 x M.2 Slot (Key M), supports type 2242/2280 M.2 for SATA only

Memory

Technology	Single Channel DDR3L up to 1600 MHz
Max	8GB
Socket	1 x SO-DIMM

Rear I/O

HDMI	N/A
DisplayPort	N/A
Ethernet	6
USB	2 x USB 3.0
Audio Jack	N/A
Serial Port	1 x RJ45 (No LED) COM port
Expansion	N/A

Power Requirements

Input PWR	12V DC-in Jack / 4-pin ATX PWR Con.
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Temperature	0°C–60°C
Storage Temperature	-40°C – 85 °C

Mechanical

Material	Metal chassis
Dimension	W*D*H: 220*145*44mm
Weight	1.1Kg
Mounting	N/A



Preliminary

NAS-9602



Spotlight Features

- Intel® Apollo Lake SoC Processor
- Supports Single Channel DDR3L SO-DIMM up to 1867, up to 8GB
- 1 x VGA
- 2 x USB 3.0
- 1 x M.2 (Key E) , 1 x M.2 (Key M)
- 6 x Intel LAN
- Supports Bypass Function
- 1 x MiniPCle with SIM socket for WiFi/3G/LTE
- 1 x TPM
- 12V DC-in Jack / 4-pin ATX PWR Con.



Specifications

Processor System

CPU	N4200, QC, 1.10 GHz, 6W
Memory	Single Channel DDR3L up to 1600 MHz
Chipset	By CPU
Graphic	Intel® HD Graphics
LAN Chipset	6 x Intel i211
Watch Dog	256 segments, 0,1,2...255sec/min

Expansion Slot

PCIe	N/A
Mini PCIe	1 x full/half size (Supports PCIe x1 and USB device)
mSATA	N/A
M.2	1 x M.2 Slot (Key E), supports type 2230 for WiFi + BT Module 1 x M.2 Slot (Key M), supports type 2242/2280 M.2 for SATA only

Memory

Technology	Single Channel DDR3L up to 1600 MHz
Max	8GB
Socket	1 x SO-DIMM

Ethernet

Interface	10/100/1000 Mbps
Controller	6 x Intel i211
Connector	6 x RJ45

Rear I/O

HDMI	N/A
DisplayPort	N/A
Ethernet	6
USB	2 x USB 3.0
Audio Jack	N/A
Serial Port	1 x RJ45 (No LED) COM port
Expansion	N/A

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 segments, 0,1,2...255sec/min

Power Requirements

Input PWR	12V DC-in Jack / 4-pin ATX PWR Con.
Power On	AT/ATX Supported AT : Directly PWR on as power input ready ATX : Press button to PWR on after power input ready

Environment

Temperature	0°C–60°C
Storage Temperature	-40°C – 85° C

Mechanical

Material	Metal chassis
Dimension	W*D*H: 220*145*44mm
Weight	1.1Kg
Mounting	N/A



iBOX-310M

Embedded BOX PC

Spotlight Features

- Intel® 5th/ 4th Gen (Broadwell-U/Haswell-U) Core™ MCP Processors
- Supports DDR3L SO-DIMM 1333/1600, up to 8GB
- 2 x HDMI
- 4 x USB 3.0, 4 x USB 2.0, 2 x SATA3
- 1 x IntelLAN, 1 x Realtek LAN
- DC 9-36V power input



Specifications

Processor System

CPU	i5-4300U, QC, 1.90 GHz, 15 W
Memory	1 x DDR3L SO-DIMM 1333/1600MHz, up to 8GB
Chipset	By CPU
Graphic	Intel® HD Graphics
LAN Chipset	1 x Realtek RTL8111G, 1 x Intel I218LM
Watch Dog	256 Segments, 0,1,2...255 Sec/min

Front I/O

Serial Port	2 x RS-232/422/485, 2 x RS-232
USB	2 x USB 2.0

Rear I/O

HDMI	N/A
DisplayPort	N/A
Ethernet	2
USB	4 x USB 3.0
Audio Jack	N/A
Serial Port	N/A

Storage

Type	2 x 2.5" SATA HDD
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Environmental

Operating Temp	0°C~50°C
Storage Temp	-40°C~85°C
Humidity	10%~90%

Mechanical

Material	Metal
Dimension	W*D*H: 170*200*70mm
Weight	2.2kg
Kensington lock	Support

Others

OS Support	Windows® 7 64-bit & 10 64-bit
Certifications	CE, FCC Class A

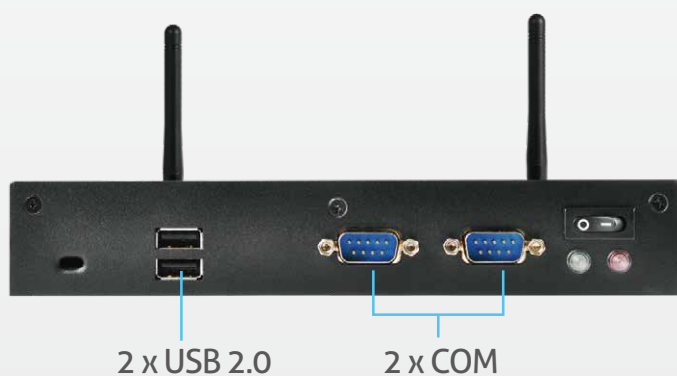


iBOX-155B

Embedded BOX PC

Spotlight Features

- Intel® Braswell SoC Processor
- VGA/HDMI
- Support Win 8.1/10 and Linux
- Dual Gigabit LAN, 2 x COM
- Slim and Fanless Design



Specifications

Processor System

CPU	N3160, QC, 1.60 GHz, 6 W
Memory	2 x DDR3L SO-DIMM 1333/1600, up to 16GB
Chipset	N/A
Graphic	Intel® Gen8 Graphic
LAN Chipset	2 x Realtek RTL8111G
Watch Dog	256 Segments, 0,1,2...255 Sec/min

Rear I/O

HDMI	N/A
DisplayPort	N/A
Ethernet	2
USB	4 x USB 3.0
Audio Jack	N/A
Serial Port	N/A

Storage

Type	1 x 2.5" HDD/ SSD
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Front I/O

Serial Port	2 x RS-232/422/485, 2 x RS-232
USB	2 x USB 2.0

Environment

Operating Temp	0°C~50°C
Storage Temp	-40°C~85°C
Humidity	10%~90%

Mechanical

Material	Top cover -aluminum extrusion/ Base- metal
Dimension	200 x 200 x 35mm (WxDxH)
Weight	1.8 Kg
Mounting	VESA mounting bracket (Optional)

Front I/O

OS Support	Windows 8.1/10, Linux
Certifications	CE, FCC Class A

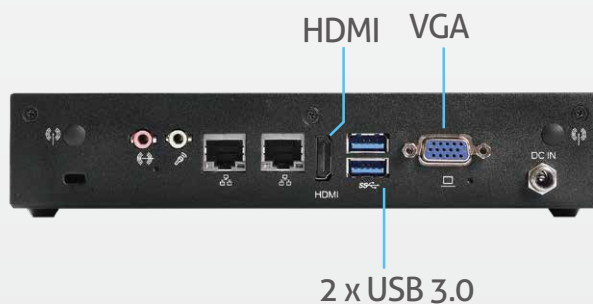


iBOX-230

Embedded BOX PC

Spotlight Features

- Intel® Apollo SoC Processor
- 1*VGA, 1*HDMI
- Support Win 10
- Dual Intel LAN, 2 x COM
- Slim and Fanless Design



Specifications

Processor System

CPU	Intel® Apollo SoC Processor
Memory	2 x DDR3L SO-DIMM 1861, up to 16GB
Chipset	N/A
Graphic	Intel® Gen9 Graphic
LAN Chipset	2 x Intel® I210
Watch Dog	256 Segments, 0,1,2...255 Sec/min

Rear I/O

HDMI	1
VGA	1
Ethernet	2
USB	2 x USB 3.0
Audio Jack	2 (Mic-in, Line-out)
Serial Port	N/A

Storage

Type	1 x 2.5" HDD/SSD
------	------------------

Front I/O

Serial Port	1 x RS-232/422/485, 1 x RS-232
USB	2 x USB 2.0

Environment

Operating Temp	0°C~50°C
Storage Temp	-40°C~85°C
Humidity	10%~90%

Mechanical

Material	Top cover -aluminum extrusion/ Base- metal
Dimension	200 x 134.5 x 39mm (WxDxH)
Weight	1.8 Kg
Mounting	VESA mounting bracket (Optional)

Others

OS Support	Windows 10
Certifications	CE, FCC Class A

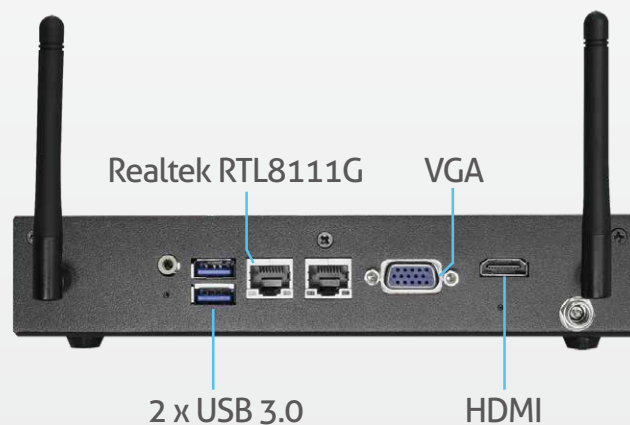
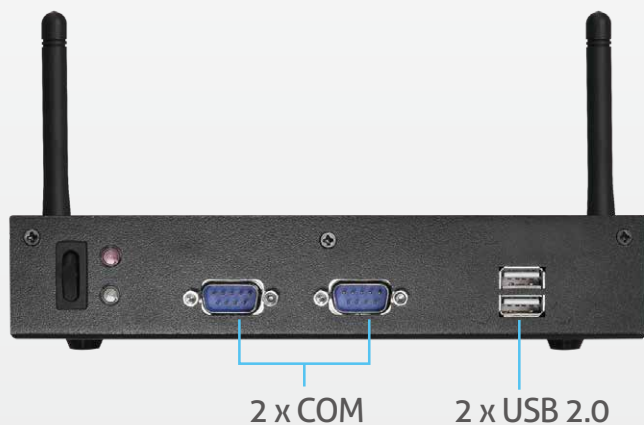


iBOX-210

Embedded BOX PC

Spotlight Features

- Intel Baytrail Soc Processor
-iBOX-210D (J1900)
- VGA output,HDMI
- Support Embedded OS Window 8/7 and Linux
- Dual Gigabit LAN and RS232
- Slim and Fanless Design
- DC 9-36V power input



Specifications

Processor System

CPU	J1900, QC, 2.00 GHz, 10 W
Memory	1 x DDR3L SO-DIMM 1333(Low voltage type), up to 4 GB
Chipset	N/A
Graphic	Intel® Gen7 Graphic
LAN Chipset	Realtek RTL8111G
Watch Dog	256 Segments, 0,1,2...255 Sec/min

Rear I/O

HDMI	N/A
DisplayPort	N/A
Ethernet	2
USB	2 x USB 3.0
Audio Jack	N/A
Serial Port	N/A

Storage

Type	1 x 2.5" HDD/ SSD
------	-------------------

Front I/O

Serial Port	1 x RS-232/422/485, 1 x RS-232
USB	2 x USB 2.0

Environment

Operating Temp	0°C~50°C
Storage Temp	-40°C~85°C
Humidity	10%~90%

Mechanical

Material	Top cover -aluminum extrusion/ Base- metal
Dimension	200x134.5x 39mm
Weight	1.3kg
Mounting	mounting bracket (optional)

Others

OS Support	Window 8/7 Linux
Certifications	CE, FCC Class A

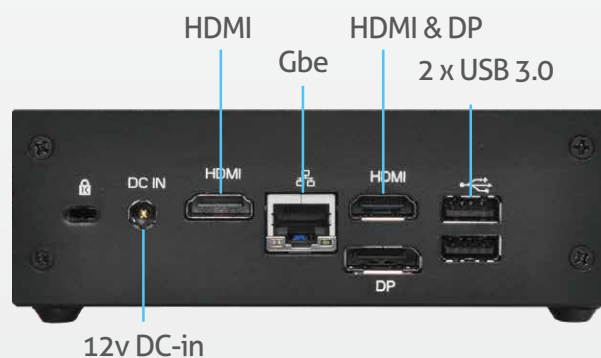
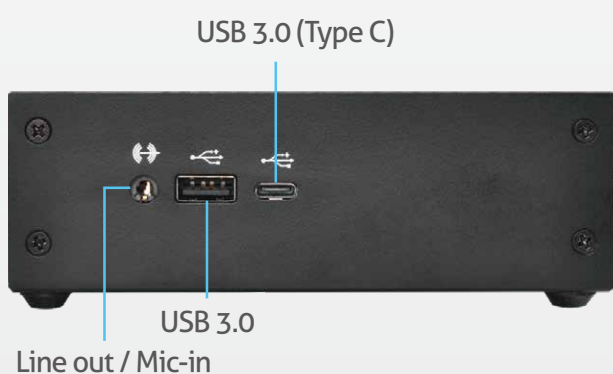


iBOX-316

Embedded BOX PC

Spotlight Features

- Intel Braswell Soc Processor
- DP/2 x HDMI
- Support Win 8.1/10 and Linux
- Gigabit LAN
- Slim and Fanless Design



Specifications

Processor System

CPU	N3160, QC, 1.60 GHz, 6 W
Memory	2 x DDR3L 1333/1600MHz SO-DIMM up to 16GB
Chipset	N/A
Graphic	Intel® Gen8 Graphic
LAN Chipset	Realtek RTL8111G
Watch Dog	256 Segments, 0,1,2...255 Sec/min

Rear I/O

HDMI	2
DisplayPort	1
Ethernet	1
USB	2 x USB 3.0
Audio Jack	N/A
Serial Port	N/A

Storage

Type	1 x 2.5" HDD/SSD
------	------------------

Environmental

Operating Temp	0°C~50°C
Storage Temp	-40°C~85°C
Humidity	10%~90%

Mechanical

Material	Top cover -aluminum extrusion/ Base- metal
Dimension	135 x 110 x 44.5mm (WxDxH)
Weight	0.5Kg
Mounting	VESA mounting bracket

Front I/O

Serial Port	N/A
USB	2 x USB 3.0 (1 x Type-A, 1 x Type-C)

Others

OS Support	Windows 8.1/10, Linux
Certifications	CE, FCC Class A

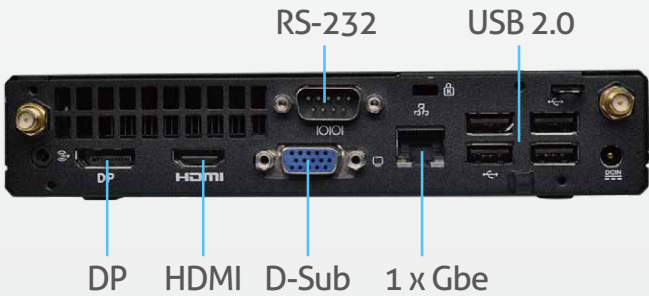


Jupiter-H110

Embedded BOX PC

Spotlight Features

- Supports Intel® 7th/ 6th Gen (Kabylake-S/Skylake-S) Core™ Processors (Socket 1151)
- Supports 8 x USB Ports
- Supports 4K UHD via HDMI
- Supports 1 x DisplayPort, 1 x HDMI, 1 x D-Sub
- Supports Dual display
- Supports M.2 (2230) slot for Wi-Fi
- Supports RS232 (COM) port



Specifications

Processor System	
CPU	Supports Intel® 7 th / 6 th Gen (Kabylake-S/Skylake-S) Core™ Processors
Memory	2 x DDR4 2133MHz SO-DIMM up to 32G
Chipset	H110
Graphic	Intel® HD Graphics
LAN Chipset	Realtek® RTL8111GN
Watch Dog	N/A

Front I/O	
Serial Port	N/A
USB	4x USB 3.0

Rear I/O	
HDMI	1
DisplayPort	1
Ethernet	1
USB	4 x USB 2.0
Audio Jack	2 (Line-in, Line-out)
Serial Port	1 x RS-232
Power	1 x DC Jack

Storage	
M.2	Supports M.2 SATA SSD (2280)
Type	Supports 7mm / 9.5mm 2.5" SATA HDD / SSD

Environmental	
Operating Temp	0°C ~40°C
Storage Temp	-40°C ~85°C
Humidity	20%~85%

Mechanical	
Material	Front Panel - Plastic / Base - Metal
Dimension	178*178*34mm
Weight	1.0kg
Mounting	supports VESA standard 100 x 100mm & 75 x 75mm dimension

Others	
OS Support	Windows® 7 64-bit & 10 64-bit
Certifications	CB, CE

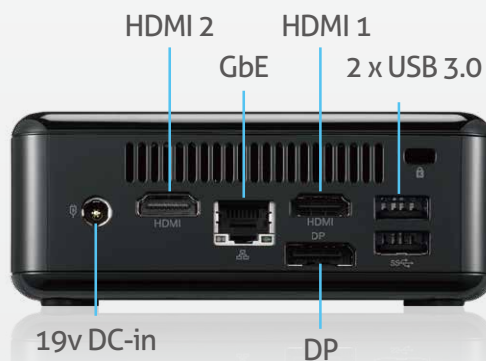
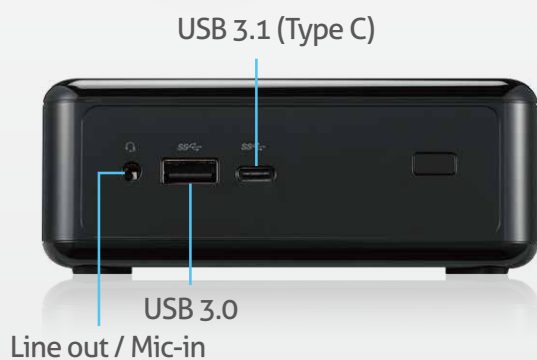


NUC BOX 6100

Embedded BOX PC

Spotlight Features

- Intel® 7th/ 6th Gen (KabyLake-U/Skylake-U) Core™ MCP Processors
- 2 x HDMI , 1 x DP
- Supports Dual Display (HDMI2 + DP or HDMI 1 + HDMI 2)
- 3 x USB 3.0, 1 x USB 3.1 (Type C), 1 x IR
- Gigabit LAN : 1 x Intel® i219V with non vPro
- 19V DC-in



Specifications

Processor System

CPU	Intel® 7 th / 6 th Gen (KabyLake-U/Skylake-U) Core™ MCP Processors
Memory	2 x DDR4 SO-DIMM 2133, up to 32GB
Chipset	By CPU
Graphic	Intel® HD Graphics 520
LAN Chipset	1 x Intel i219V (non vPro)
Watch Dog	N/A

Front I/O

Serial Port	N/A
USB	2x USB 3.0 (1 x Type-A, 1 x Type-C)

Rear I/O

HDMI	2
DisplayPort	1
Ethernet	1
USB	2 x USB 3.0
Audio Jack	1 (Mic-in/ Line-out)
Serial Port	N/A
Power	19v DC-in

Storage

Type	1 x 2.5" HDD
------	--------------

Environmental

Operating Temp	0 c~50 c
Non-Operating Temp	-40 c~85 c
Humidity	10%~90%

Mechanical

Material	Top cover - Aluminum extrusion / Base - Metal
Dimension	110*118.5*46mm (WxDxH)
Weight	0.5kg
Mounting	VESA mounting bracket

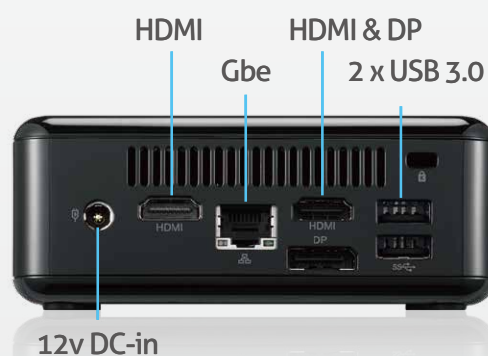
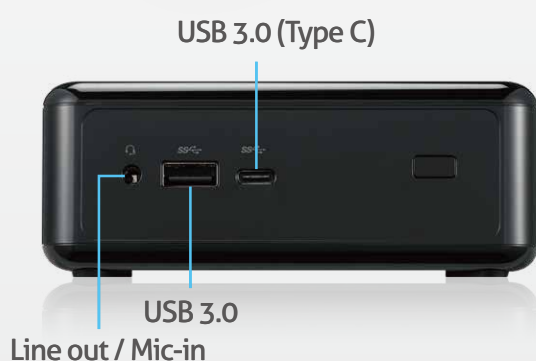
Others

OS Support	Windows®7 64-bit & 10 64-bit
Certifications	CE , FCC Class A



NUC BOX 3160 / 3010

Embedded BOX PC



Spotlight Features

- Intel Braswell Soc Processor
- DP/2 x HDMI
- Support Win 8.1/10 and Linux
- 1 x Realtek LAN
- Fanless Design for N3000, FAN Design for N3160

Specifications

Processor System		NUC BOX 3160	NUC BOX 3010
CPU		N3160, QC, 1.60 GHz, 6 W	N3010, DC, 1.04 GHz, 4 W
Memory		2 x DDR3L SO-DIMM 1600, up to 16GB	
Chipset		N/A	
Graphic		Intel® Gen8 Graphic	
LAN Chipset		1 x Realtek RTL8111G	
Expansion		1 x M.2 slot / 1 x mSATA	
Watch Dog		256 Segments,0,1,2,...255sec/min	
Rear I/O			
HDMI		2	
DisplayPort		1	
Ethernet		1	
USB		2 x USB 3.0	
Serial Port		N/A	
Power		12v DC-in	
Storage			
Type		1 x 2.5" HDD/ SSD	

Front I/O		NUC BOX 3160	NUC BOX 3010
Serial Port		N/A	
Audio Jack		1 (Mic-in/ Line-out)	
USB		2x USB 3.0 (1 x Type-A, 1 x Type-C)	
Environmental			
Operating Temp		0 c~50 c	
Storage Temp		-40 c~85 c	
Humidity		10%~90%	
Mechanical			
Material		Top cover -aluminum extrusion/ Base- metal	
Dimension		110 x 118.5 x 46mm (WxDxH)	
Weight		0.5Kg	
Mounting		VESA mounting bracket	
Environmental			
OS Support		Windows 8.1/10, Linux	
Certifications		CE , FCC Class A	

Premium API Solutions

API (Application Programming Interface) is a set of routines, protocols, and tools for building software applications. It is used as an interface by software components to communicate with each other. A good API can facilitate programmers to build up their system easier and more effortlessly. ASRock IPC platforms come with an array of intelligent API solutions that make its motherboards easier and simpler to adopt and operate with customer applications.

Software APIs

Control



GPIO

GPIO (General Purpose Input/Output) is a flexible parallel interface that allows a variety of custom connections. Each GPIO port can be individually configured through software as either an input or output. It allows users to monitor the level of signal input or set the output status to switch on/off a device.



SMBus™

SMBus (System Management BUS) was developed by Intel. It's an interface between the CPU and computer system components used for low-speed system management communications. It can transfer serial messages by using SMBus protocols to control multiple devices simultaneously.



I2C

I2C (Inter-IC-Squared-C Bus) - a two-line, synchronous, serial bus, that is widely used to connect chips together on a circuit board. I2C API allows the system to transfer serial messages via I2C protocols and allows multiple simultaneous device control.

Display



Brightness Control

The Brightness Control API allows users to ideally change the screen brightness and controls the brightness of the entire screen easily.



Backlight

The Backlight API allows users to interface with an embedded device to easily adjust the level of the backlight (screen).

Monitor



Watchdog

Watchdog timer (WDT) is a device that performs a specific operation after a certain period of time if something goes wrong and the system does not recover on its own. The interface provides uniform access to services of the underlying watchdog drivers.



Hardware Monitor

Hardware Monitor shows the major readings of your system. The main readings include Clock, Fan & Temperature, and Voltage. In Clock, there are CPU speed and CPU ratio. In Fan & Temperature, there are CPU temperature and CPU fan speed. You may find out if there's any abnormal situation occurs to your system's temperature. In Voltage, there are many respective voltages.



Hardware Control

The Hardware Control API provides more hardware settings more precisely. It allows developers to set the PWM (Pulse Width Modulation) value to adjust fan speed or other devices.

Power Saving



CPU Speed

Taken advantage of Intel SpeedStep technology, CPU Speed API ensures lower power consumption. CPU speed will be automatically adjusted when the system works under heavy-loading.



System Throttling

System Throttling provides a bucketful of methods to reduce power consumption. It keeps the system from overheated by lowering the clock frequency.

Software Utilities



BIOS Flash

BIOS Flash is the most user-friendly BIOS flash utility developed by ASRock. It is embedded in Flash ROM which is used to update the system BIOS without having to enter operating systems like MS-DOS or Windows.



Flash Lock

Secure your system the easy way with Flash Lock. It is a mechanism that binds the board and CF card (SQFlash) together. SQFlash can be "Locked" via Flash Lock function and "Unlocked" it when the system is restarting via BIOS. The locked SQFlash cannot be awaked by any device and can only be booted from the BIOS with the "Unlocked" feature.



Monitoring

Monitoring utility is an all-rounder utility which includes Voltage, CPU and System Temperature and Fan speed, allowing users to monitor system status more precisely.



Crashless BIOS

ASRock Crashless BIOS allows users to update their BIOS without fear of failing. If power loss occurs during the BIOS update process, ASRock Crashless BIOS will automatically finish the BIOS update procedure after regaining power.

